NOVEMBER 1936

COTTON

Serving the

TEXTILE INDUSTRIES

OVER a broad front of 25 states, Robert and Company has been helping the forward march of industry for 16 years. This map shows two hundred communities in which we have executed some two thousand projects of various types.

ROBERT AND COMPANY

ATLANTA INCORPORATED GEORGIA

Architects and Engineers

KNITTED GARMENTS SUPPLIED THROUGH COURTESY OF WATERVILLE TEXTILE MILLS, WATERVILLE, N. Y.

For ingrain knitted fabrics, color quality is the paramount requirement, particularly when the colors are used next to bleach • • • Yarn quality is also important, but this is a staple commodity obtainable from many sources and we, as one of these sources, can duplicate practically any yarn quality desired • • • However, as yarn dyers we offer the benefits of an experience that can NOT be duplicated by any other organization, either spinners or custom dyers. Our five plants in some years dye about 15,000,000 pounds of yarn with many different types of colors for all branches of the textile industry • • • This experience is your assurance of exceptionally dependable performance and

PERFORMANCE (not price) DETERMINES VALUE

FRANKLIN PROCESS

ESTABLISHED 1910

Pioneers in Package Dyeing

Natural Yarns **Colored Yarns** **Glazed Yarns** **Custom Yarn Dyeing** **Dyeing and Processing Machines**

PROVIDENCE • PHILADELPHIA • GREENVILLE • CHATTANOOGA • CHICAGO • N. Y. REPRESENTATIVE, 40 WORTH ST.

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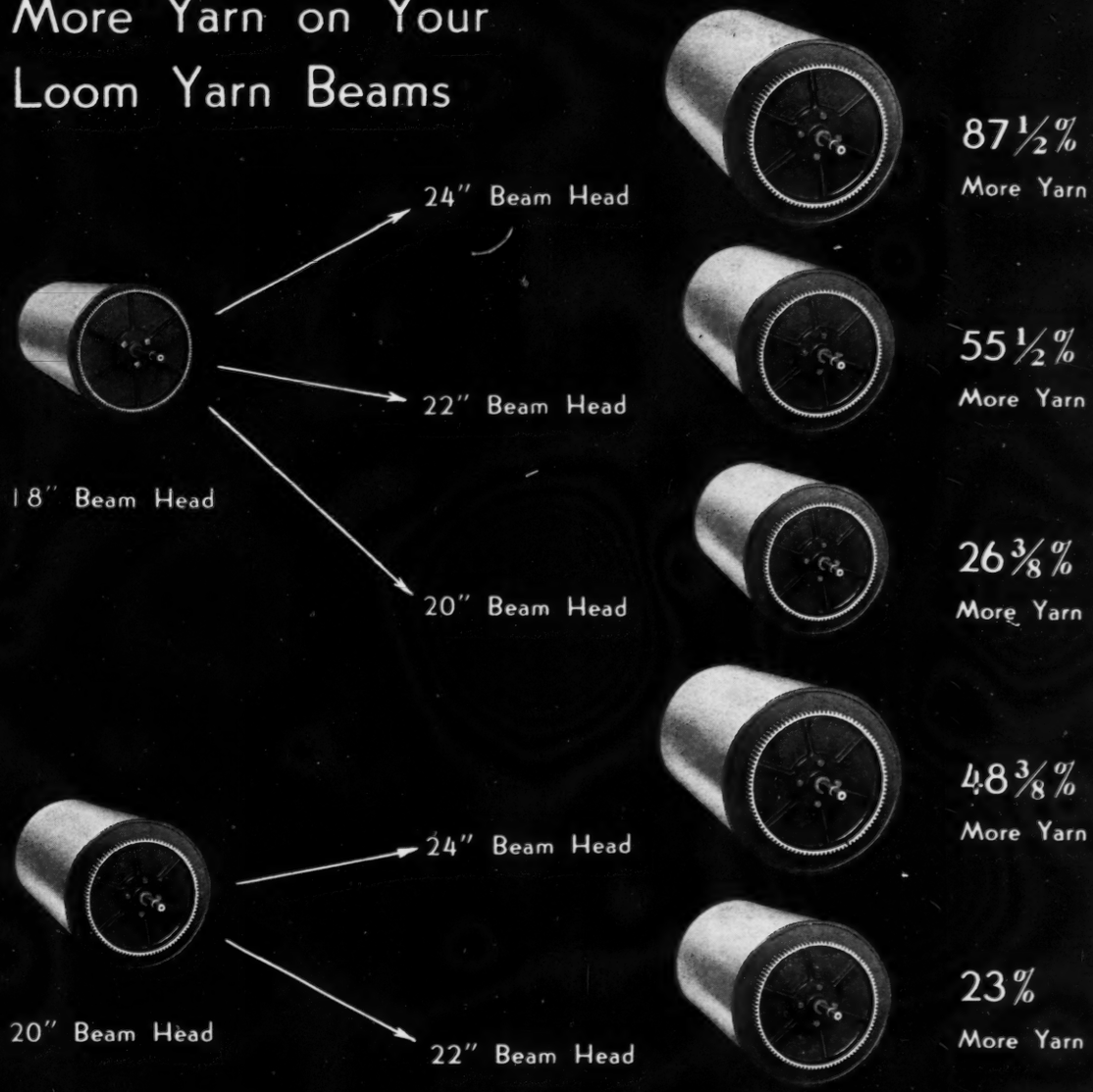
Entered as second-class matter at the postoffice, Dalton, Ga., under the Act of March 3, 1879.

More Yarn on Your Loom Yarn Beams



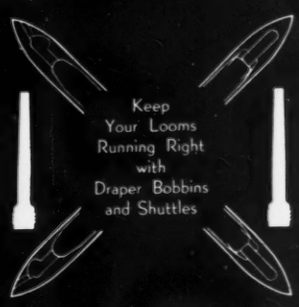
Why Not Change Your Looms to Take Larger Beam Heads?
We Can Tell You How
You Get Them When You Buy Our New High Speed Looms
And There Are Other Changes You Can Make on Your
Present Looms to Increase Their Efficiency

Let's Talk It Over

DRAPER CORPORATION

Hopedale Massachusetts

Atlanta Georgia Spartanburg S C



TEXACO AT WORK

reducing spoilage

BECAUSE the New Texaco Summitlube is white, it will not stain yarn or goods.

Because of its special chemical properties, it is easy to wash out.

Mill operators find that it fills many needs in all types of Textile Machinery where spots on yarn and piece-goods can cause damage or extra washing operations.

On your spinning rings, its excellent lubricating value will reduce wear on travelers, cause less drag, and minimize the number of ends-down. In many instances the use of Summitlube will permit increased spinning speeds.

A Texaco representative will be glad to provide practical engineering service to prove the exceptional merits of the New Texaco Summitlube.

THE TEXAS COMPANY

135 East 42nd Street New York City

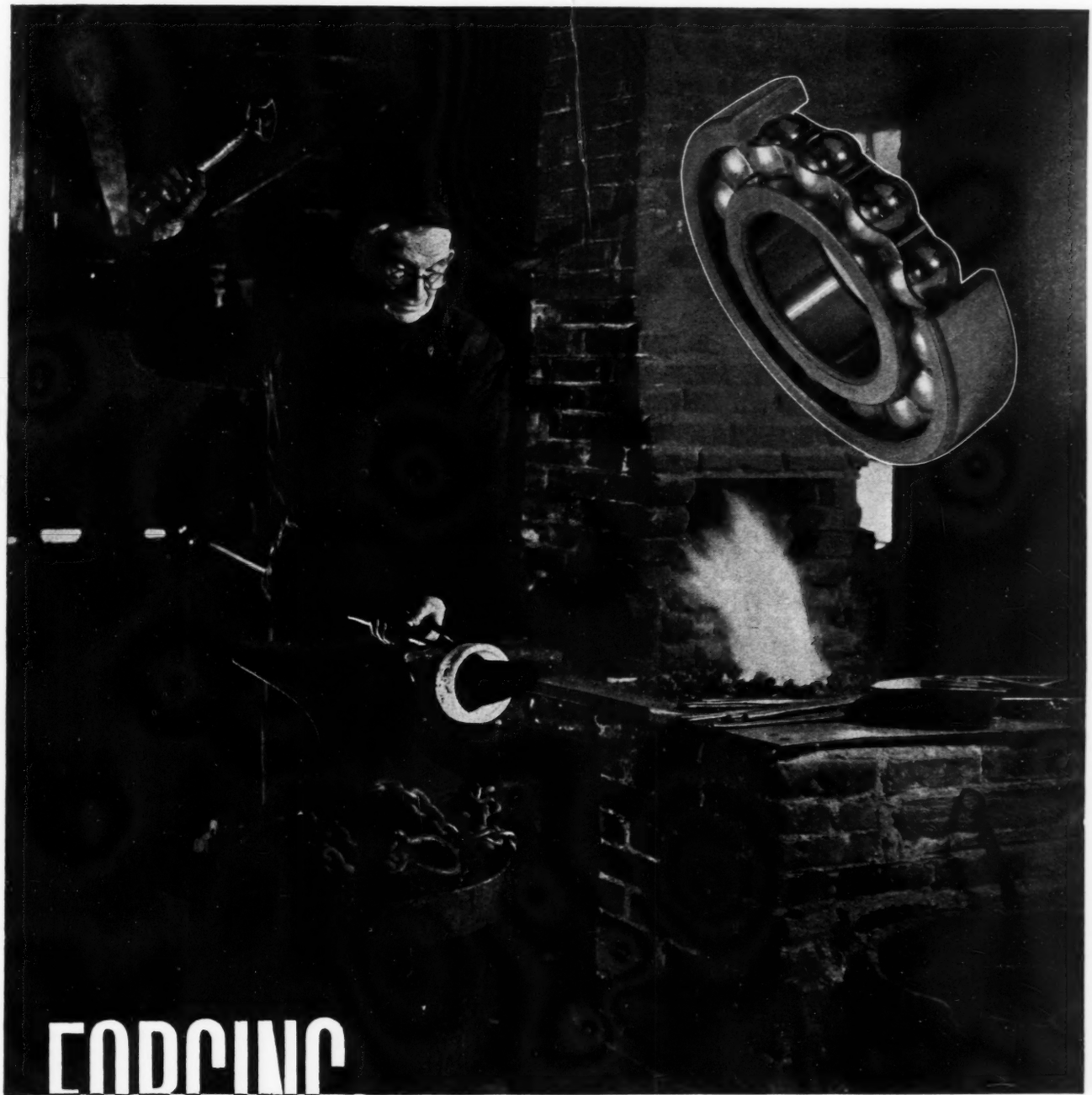
Nation-wide distribution facilities assure prompt delivery

THE NEW TEXACO SUMMITLUBE

VISIT THE TEXACO EXHIBIT—POWER SHOW—GRAND CENTRAL PALACE, N. Y., NOV. 30—DEC. 5. BOOTH 282

TEXACO

. . . Since The Days Of The Village Smithy



FORGING has always meant toughness!

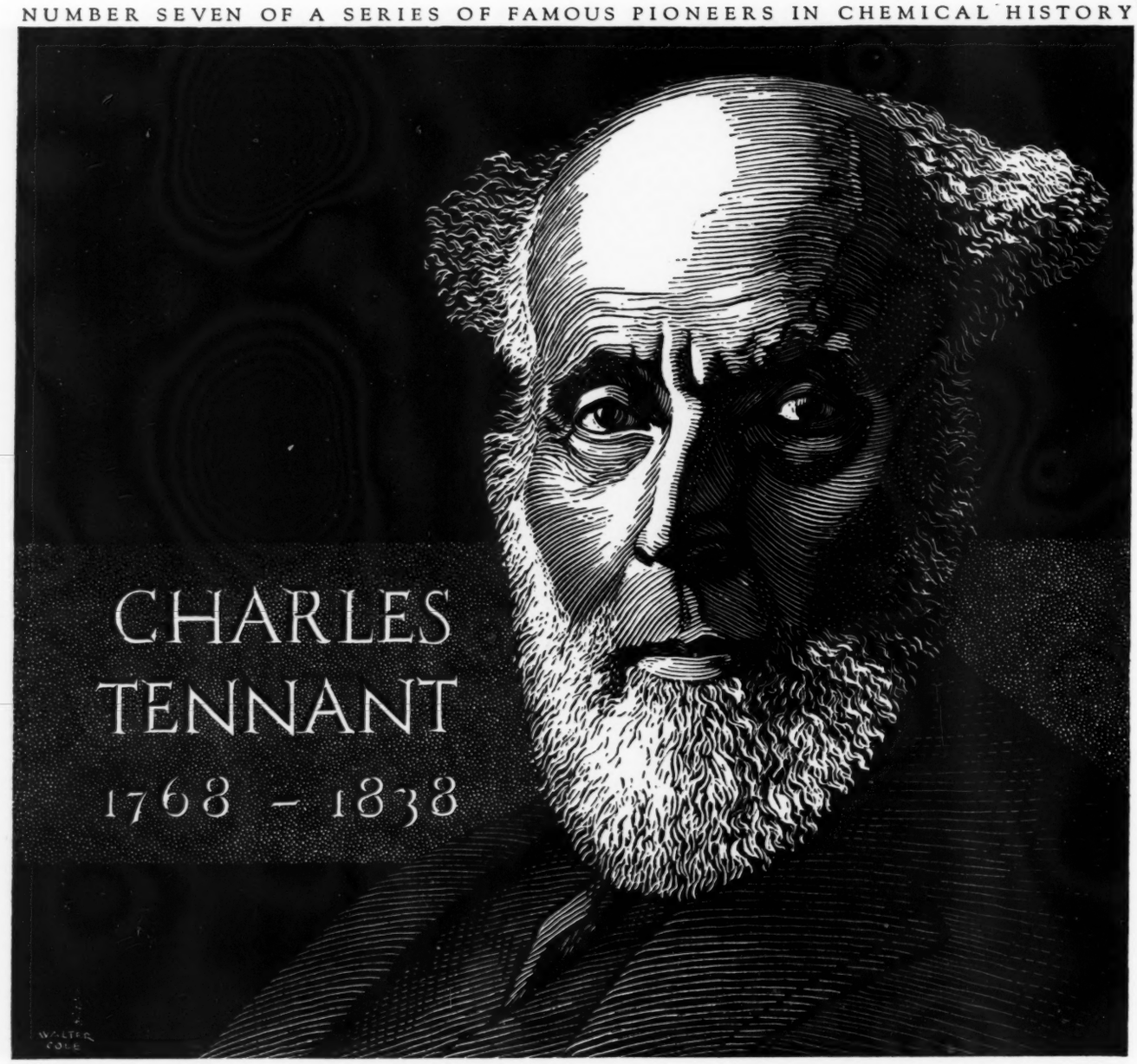
That's why extra long service life is found in

NEW DEPARTURE

THE *FORGED STEEL* BEARING

2488

NUMBER SEVEN OF A SERIES OF FAMOUS PIONEERS IN CHEMICAL HISTORY



TEXTILE bleaching was shortened from a matter of months to a matter of hours when Charles Tennant, an "eminent practical chemist" of Glasgow, produced the first bleaching powder by saturating lime with chlorine. Others had recognized the possibilities offered by the decolorizing action of chlorine upon fabrics, but Tennant made chlorine available in commercial quantities in a form that could be transported and readily applied. In the United States, the earliest production of bleaching powder was in 1895, when Mathieson placed the first domestic product on the market. Since this early pioneering venture, Mathieson has been in the forefront of new developments in the production and distribution of chlorine and chlorine products and in the efficient application of these products in textile bleaching, in paper and pulp bleaching, in petroleum refining, in water purification and in other important fields.

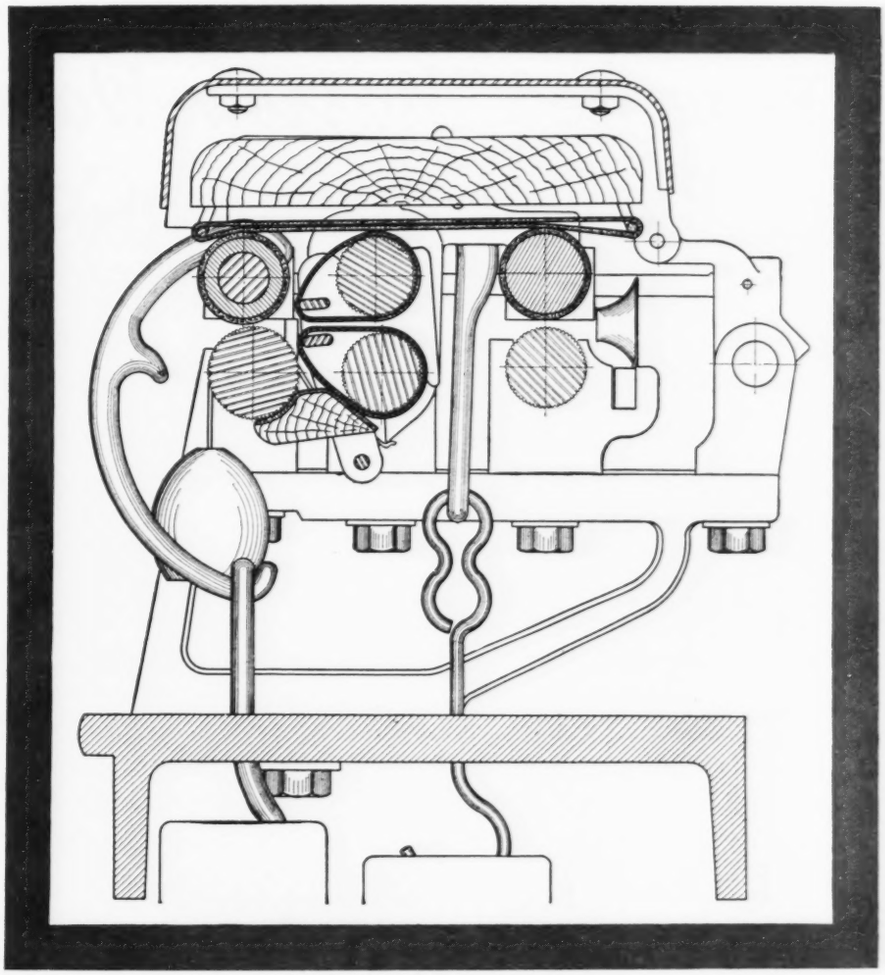
The MATHIESON ALKALI WORKS (*Inc.*), 60 East 42nd St., New York, N. Y.

In its Annual Proceedings of 1839, the Institution of Civil Engineers, London, said of Charles Tennant: "The great revolution in the practice of bleaching... was carried out by the discoveries made by him, first of the Solution of Chloride of Lime and afterwards of the dry Chloride of Lime, or bleaching powder—an inestimable gift to the arts with which the name of Mr. Tennant will always be associated. He... will long continue to be extensively known and associated with practical science."

SODA ASH . . . CAUSTIC SODA . . . BICARBONATE OF SODA . . . LIQUID CHLORINE . . . BLEACHING POWDER . . . HTH AND HTH-15 . . .

Mathieson Chemicals

AMMONIA, ANHYDROUS AND AQUA . . . PH-PLUS (FUSED ALKALI) . . . SOLID CARBON DIOXIDE . . . CCH (INDUSTRIAL HYPOCHLORITE)



BUY ON WHITIN CASABLANCAS PERFORMANCE

Do you spin 16's yarns, or coarser?

Most of your competitors are using Whitin-Casablancas Slubbers.

Do you spin yarns within the range of 20's to 30's?

Let us tell you about the advantages of Whitin-Casablancas Long Draft on 8 x 4" Roving Frames.

Whitin-Casablancas Roving long draft is simple, cheap and effective. It SAVES floor space. Every installation has paid for itself in three years or less — sometimes within eighteen months.

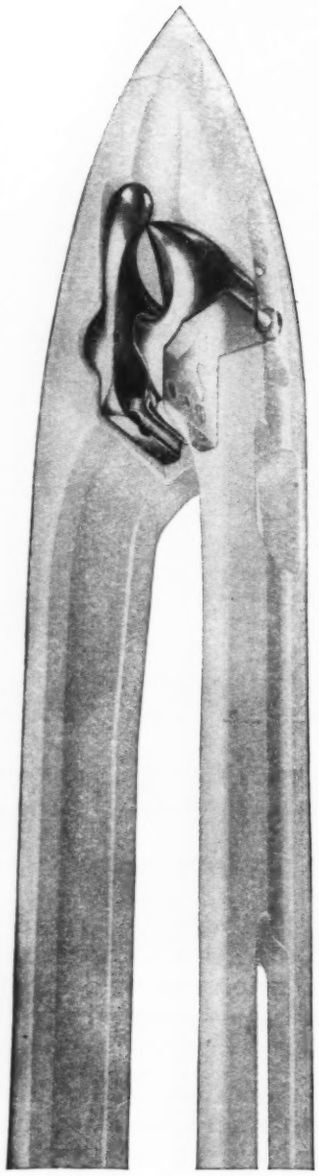
One hundred American Mills have brought this equipment for more than 80,000 spindles.

No machinery investment made today will pay for itself more quickly!

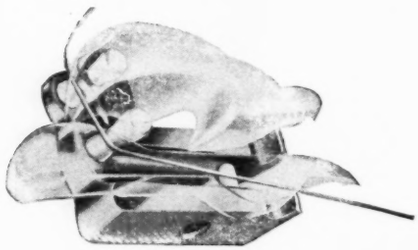
WHITIN MACHINE WORKS

CHARLOTTE, N. C. WHITINSVILLE, MASS. ATLANTA, GA.

Patented *"Narrow-Waisted"* Pins Perfect this Die-Cast Eye!



THESE features mean a great deal in speed and efficiency in weaving rayon and silk. Check over the advantages now offered in the U S Jackson Tension Shuttle for bobbin-changing looms.



1. Die-cast eye is always uniform—easily changed from one shuttle to another.

2. *Three patented "Narrow-Waisted"* porcelain or steel pins give one horizontal and two vertical guides. They hold the filling away from the metal and in the thread groove.

3. Tension is adjustable to any degree desired — *gives positive tension on the first pick and every pick.*

Hundreds of rayon and silk weaving plants are using this shuttle. Ask our nearest office for full information.

U S BOBBIN & SHUTTLE CO.

Manchester, New Hampshire

Offices: Providence, R. I., Lawrence, Mass., Philadelphia, Pa., Monticello, Ga., Greenville, S. C., Johnson City, Tenn.
Chicago Agent: Albert R. Breen, 2650 Coyne St.

BETTER BOBBINS • SPOOLS • CONES • SHUTTLES

the original ROTATING TRAVERSE *(Reece Roll)*

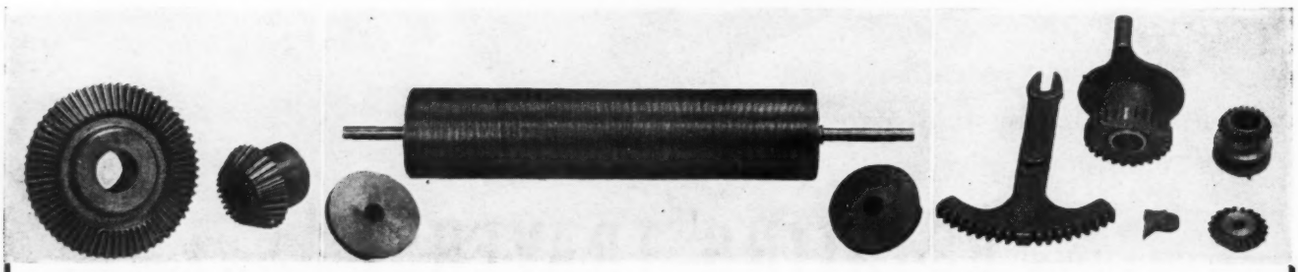
The United States District Court (Judge McLellan) has held the Reece patent, No. 1,749,355, on the Rotating Traverse (Reece Roll) valid and infringed by Foster Machine Company's machine No. 103, in an opinion dated October 1, 1936.

UNIVERSAL WINDING COMPANY

BOSTON PROVIDENCE SPRINGFIELD NEW YORK CHARLOTTE UTICA ATLANTA

NOTHING
Too Large
or
Perplexing

NOTHING
Too Small
or
Intricate!



WEST POINT SPECIALLY MADE TEXTILE EQUIPMENT AND PARTS

You need have no hesitancy in calling on us for any special machinery or parts. If we cannot serve you adequately we will tell you promptly.

If a part or a gear of a textile machine breaks, we may have it in stock, but if not, we can make a new one in a short time.

Loom parts, spinning frame parts, pump parts, card parts, and various other miscellaneous parts for textile machinery are manufactured by us from iron, steel, brass, bronze and other metals and alloys.

Our foundry and machine shop is well equipped and we maintain a force of capable mechanics as well as our own Engineering Department to furnish designs of our own or to work out yours.

If you have need for special machinery or special parts, we can help you perfect and produce them for your exclusive use, as we have for a number of other mills.

So remember, ***"Nothing too large or perplexing nothing too small or intricate."***

WEST POINT FOUNDRY & MACHINE CO.

(Batson-Cook Company, Owners)

WEST POINT, GEORGIA

SPINNING ROOM No. 1
PEPPERELL MFG. CO.
LINDALE, GEORGIA

This modern mill operates 112,644 Spindles Saco-Lowell Model 32 Spinning —all equipped with Saco-Lowell Roth Better Drafting.

Economize by Modernizing WITH SACO-LOWELL *Equipment*

★ CERTAIN MILLS have always been regarded as leaders in the industry . . . These mills maintain year-after-year prestige because their managements are alert to the changes and improvements in machinery and processes—their adoption of new ideas is timely.

Outstanding among these progressive managements is that of the Pepperell Mfg. Company. For example: **although their mill at Lindale, Georgia, was built in 1895, it has been modernized so that it is today one of the most efficient and economical mills in the industry.**

Mills using obsolete equipment should not let themselves get out of touch with the times —they should consult Saco-Lowell and find out how they can economize by modernizing —as Pepperell and over 200 other mills have done.

BETTER DRAFT SPINNING MEANS... SACO-LOWELL ROTH BETTER QUALITY AT A LOWER COST

SACO-LOWELL SHOPS · 147 MILK STREET, BOSTON, MASS.

WHY SPEND the money to install humidifying equipment in your mill unless it does the whole job?

An installation of miscellaneous equipment that supplies "moist air" is a job half done. The characteristics of the mill itself must specify the type and quantity of units necessary. Then ADEQUATE HUMIDITY will be provided and maintained, for the efficient operation of each mill process.

Amco engineers are schooled by long experience in process studies of cotton, woolen and worsted manufacture. And every Amco engineer has at his command the complete line of Amco equipment, from which to choose the tools exactly suited to each particular job.

When you make an investment for moistening equipment, be sure that investment provides and maintains correct humidification for every mill process. We have specialized in this work since 1888.

AMERICAN MOISTENING COMPANY
Established 1888
Providence, R. I.

AMCO

BOSTON, MASS. ATLANTA, GA.
CHARLOTTE, N. C.

TAKE YOUR TEXTILE HUMIDIFYING JOB TO A TEXTILE HUMIDIFYING SPECIALIST

INCREASINGLY — PROFIT SIGNS POINT TO THE SCIENTIFIC ELIMINATION OF WASTE

Increasingly — modern, precision equipment is playing an important part in the search for profits.

Scientific research has brought Crompton & Knowles an entirely new conception in loom building. Combining the fruits of science and mass production we now offer new higher efficiency looms* that produce higher quality fabrics, are faster, more flexible and more economical to operate . . . can you come to Worcester to see them in operation?

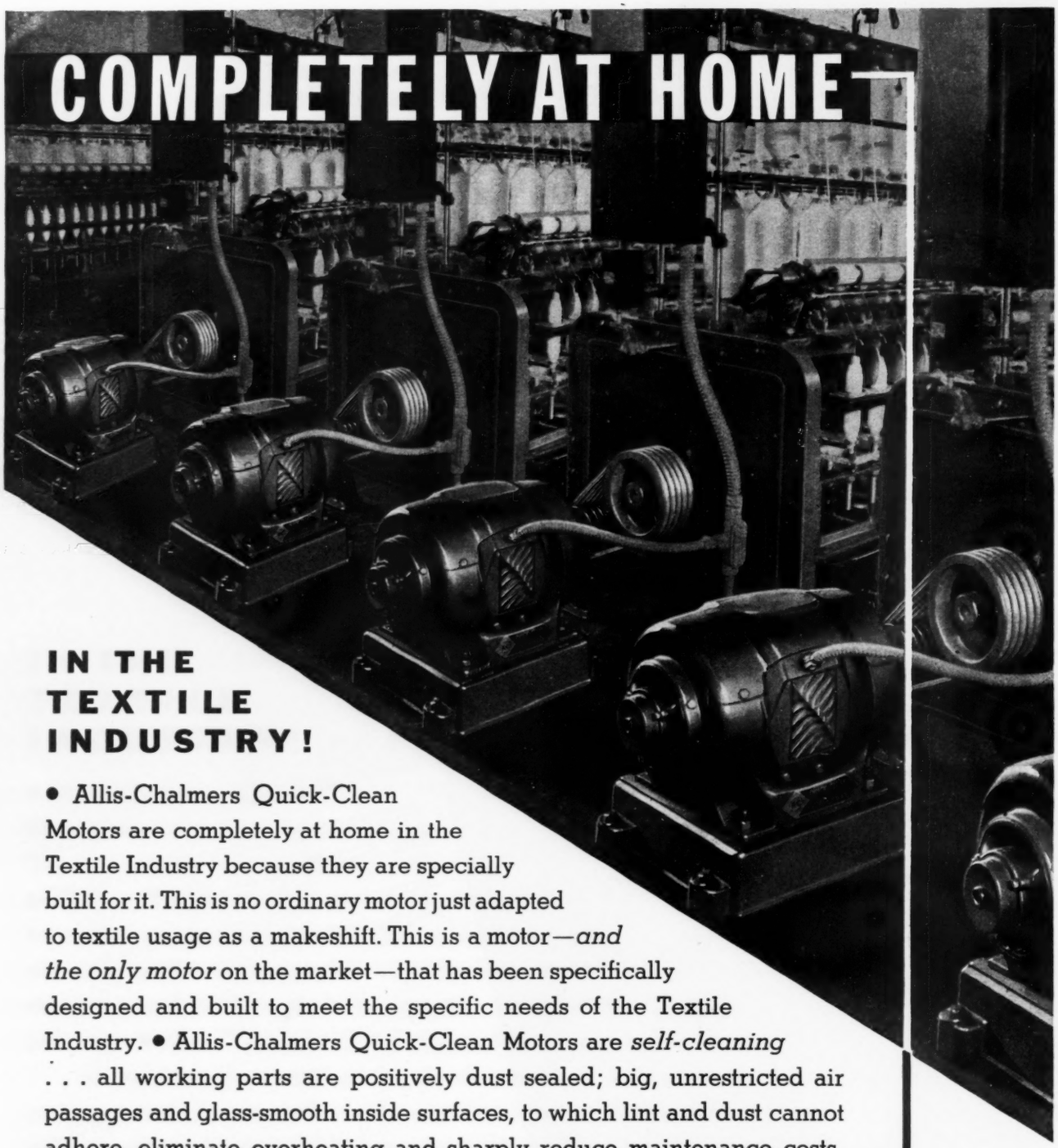
*and Supply Parts, too

CROMPTON & KNOWLES LOOM WORKS

WORCESTER, MASS.

Allentown, Pa. - Philadelphia, Pa. - Charlotte, N. C.

Crompton & Knowles Jacquard & Supply Co. - Pawtucket, R. I.



IN THE TEXTILE INDUSTRY!

• Allis-Chalmers Quick-Clean Motors are completely at home in the Textile Industry because they are specially built for it. This is no ordinary motor just adapted to textile usage as a makeshift. This is a motor—*and the only motor* on the market—that has been specifically designed and built to meet the specific needs of the Textile Industry. • Allis-Chalmers Quick-Clean Motors are *self-cleaning* . . . all working parts are positively dust sealed; big, unrestricted air passages and glass-smooth inside surfaces, to which lint and dust cannot adhere, eliminate overheating and sharply reduce maintenance costs. • Four sizes—5, 7½, 10 and 15 hp. Standard N. E. M. A. mounting.

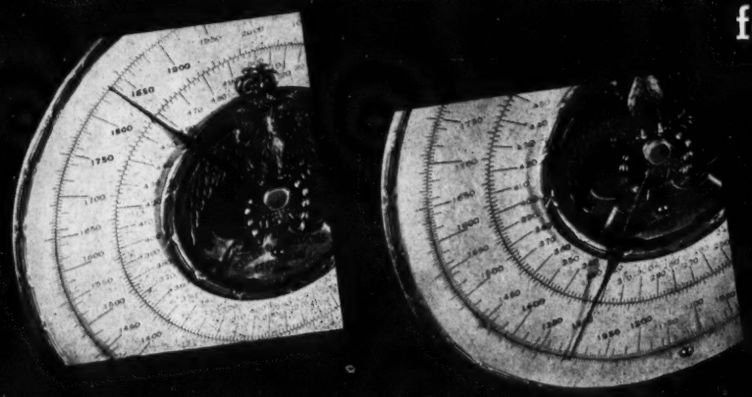
MOTOR DIVISION

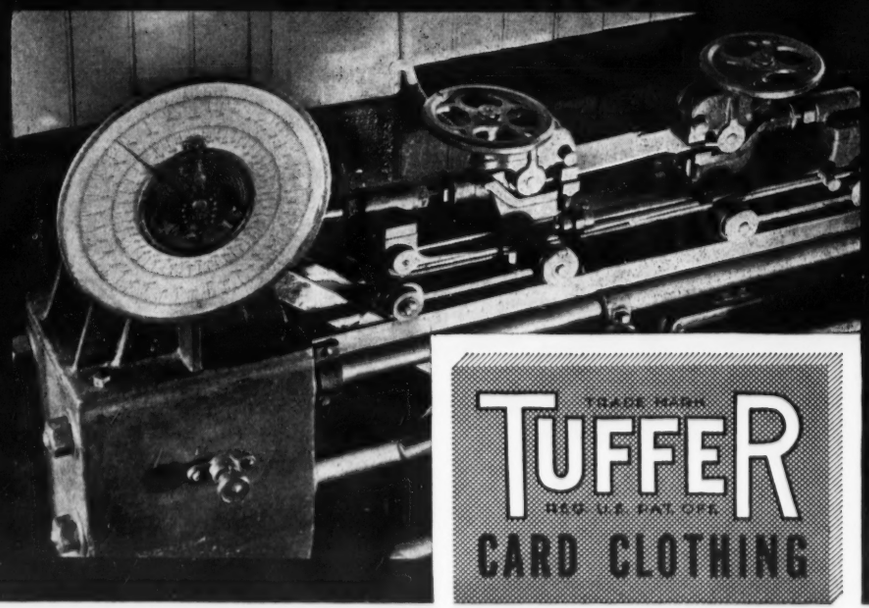
ALLIS-CHALMERS

QUICK-CLEAN

MILWAUKEE WISCONSIN

TUFFER Foundation is tested to withstand a strain of 1800 pounds before setting and a strain of 1300 pounds when foundation is set with teeth





When TUFFER Card Clothing is working on your machines the severest pulling strain seldom exceeds 350 pounds. Tests show TUFFER Foundation to be several times necessary strength.

In operation TUFFER Card Clothing keeps its efficient points longer, because the wire is held in our own patented foundation, which is "cushioned" just right to make the wire shock proof to the constant hammering of the various stocks carded.

The patented construction of TUFFER Foundation and exacting care exercised by conscientious and capable card clothing craftsmen result in lower carding costs for you. Make sure you have the proper card for your particular work. We can help you specify.

A boss carder, on the job for thirty years, says: **"I have used many makes of card clothing, but I have not found anything that could take the place of TUFFER."**

TRADE MARK
TUFFER
REG. U.S. PAT. OFF.
CARD CLOTHING

HOWARD BROS. MFG. CO.

HOME OFFICE AND FACTORY: WORCESTER, MASS.

Southern Plant: 244 Forsythe St., Atlanta **Branch Offices:** Philadelphia, Dallas

Products: Fillets for Feed Rolls, Lickerins, Tumblers, Strippers, Workers, Doffers, Fancies, and Cylinders, Doffer Rings, Napper Clothing, Strickles, Emery Fillets, Burnisher Fillets, Top Flats Recovered and extra sets loaned, Lickerins and Garnett Cylinders from 4 to 30 inches and Metallic Card Breasts Rewired at Southern Plant. Midgley Patented Hand Stripping Cards, Howard's Special Hand Stripping Cards and Inserted Eye and Regular Wire Heddles

BETTER THAN DAYLIGHT

Magnify Detail

WITH THIS

REVEALING LIGHT

Magnification of detail promotes better sight and better production. It wipes out many of the losses hidden in cost sheets and time sheets — losses which are avoidable when this detail-revealing light is put to work.

Do not let your workers waste energy in the mere physical act of "seeing." Give them the assistance of Cooper Hewitt Mercury Vapor Light. It banishes harsh shadows, reveals detail hidden under improper lighting, minimizes eye fatigue — in fact, it provides the one quality of light which promotes a better quality in production, which minimizes rejects and wasted time.

An ever-increasing list of manufacturers in every branch of industry is realizing the profit possibilities of this extremely efficient industrial light. They have bought it as an added production tool and are profiting from the investment. It will pay *you* to investigate. For full details address the General Electric Vapor Lamp Company, 853 Adams Street, Hoboken, New Jersey.

GENERAL ELECTRIC VAPOR LAMP COMPANY

673C

In Textile Mills Everywhere Alemite Controlled Lubrication Realizes Big Gains for Users

THESE guns never miss their mark! They force lubricant, under tremendous pressure to every part of the bearing surface. They lick friction on every kind of textile machinery.

Alemite Controlled Lubrication shows big gains for textile manufacturers in every field. Perhaps the most important is the gain in machine efficiency—through bearing failures avoided, breakdowns prevented, and production maintained.

There is no contamination of product, machinery or floors when Alemite Guns are used. Time is saved because they are quick, clean, efficient. Lubricant savings alone may mount into considerable money, because there is no waste when Alemite Guns meter the lubricant.

Put these guns to work in *your* War with Friction! There's an Alemite System, power or manually operated, which can meet your requirements exactly. Installation is easy. Cost is small. Production need not be interrupted. Read the money-saving facts in our new FREE manual, "The Case of Alemite vs. Friction." Mail the coupon today.

ALEMITE—*A Div. of Stewart-Warner Corp'n.*
1884 Diversey Parkway, Chicago, Ill.
Stewart-Warner-Alemite Corp'n. of Canada, Ltd., Belleville, Ontario, Canada

Enjoy Horace Heidt and his Alemite Brigadiers every Monday Evening, CBS Coast-to-Coast Network. See local papers for time of broadcast.

ALEMITE
REG. U. S. PAT. OFF.
WORLD'S LARGEST MANUFACTURERS OF LUBRICATION PRODUCTS

ALEMITE—*A Div. of Stewart-Warner Corp'n.* Dept. K
1884 Diversey Parkway, Chicago, Ill.

Please send your new free manual, "The Case of Alemite vs. Friction."

Name.....

Address..... *State*.....

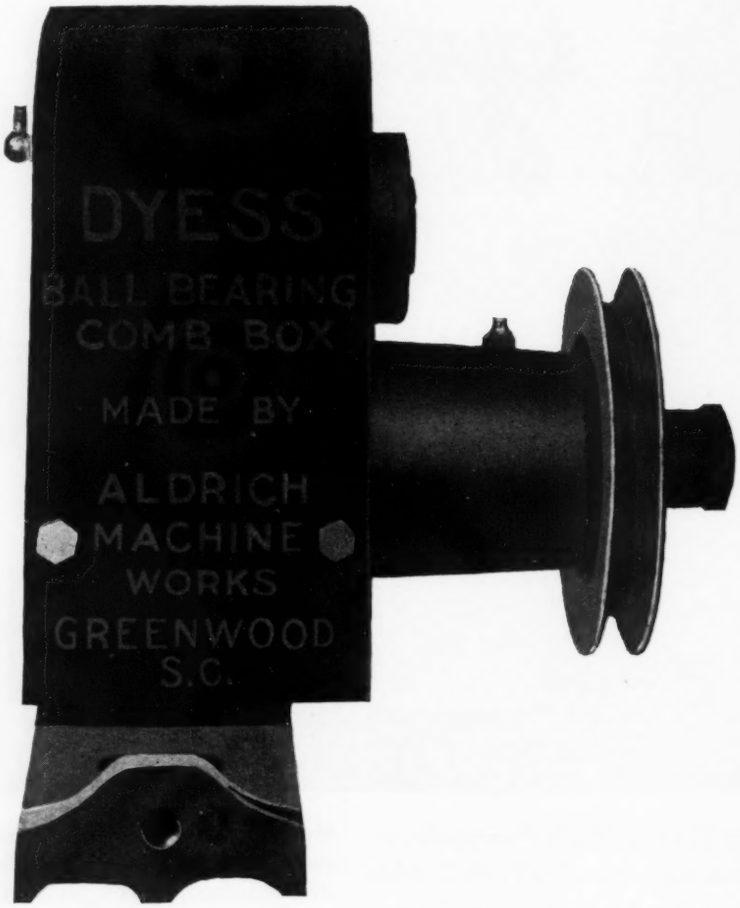
City.....

Firm Name.....

SOME OF THESE SHOULD ALWAYS BE ON HAND IN EVERY COTTON MILL SUPPLY ROOM

Clean! Quiet! Cool!

No Drip - No Spatter - No Rattle



Old, worn-out comb boxes waste oil and are a constant expense.

Their perpetual dripping of oil on the floor is a menace to safety.

Their spattering injures the card clothing, and stains the work.

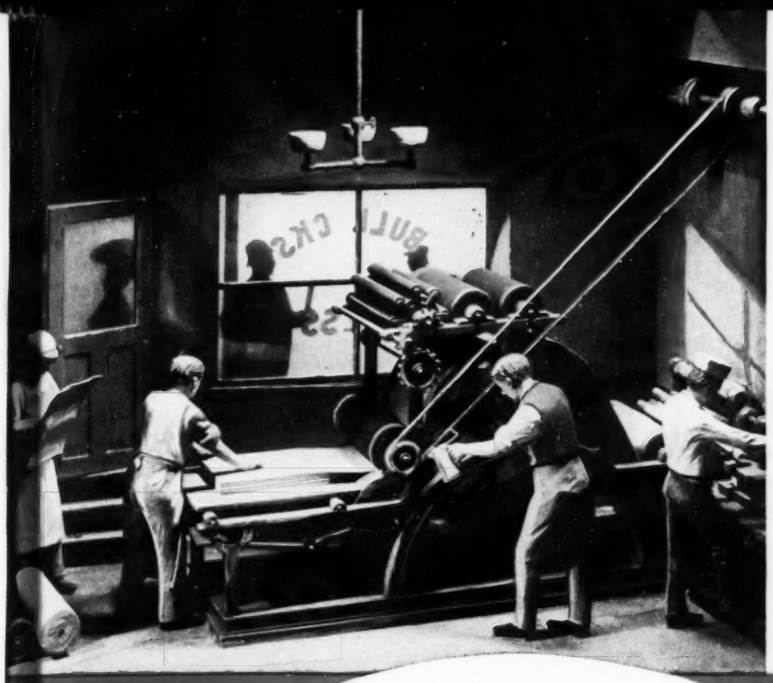
Dyess Comb Box with cover removed

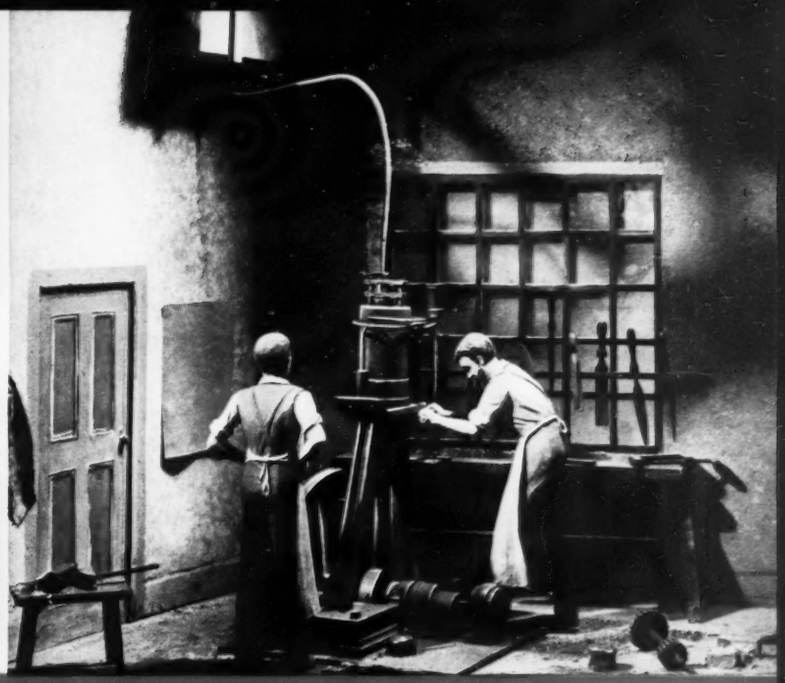
Replace them with new ball bearing comb boxes kept on hand always in the supply room.

Made by

ALDRICH MACHINE WORKS

Greenwood, South Carolina





HERE'S WHERE WE LEARNED OUR TRADE!

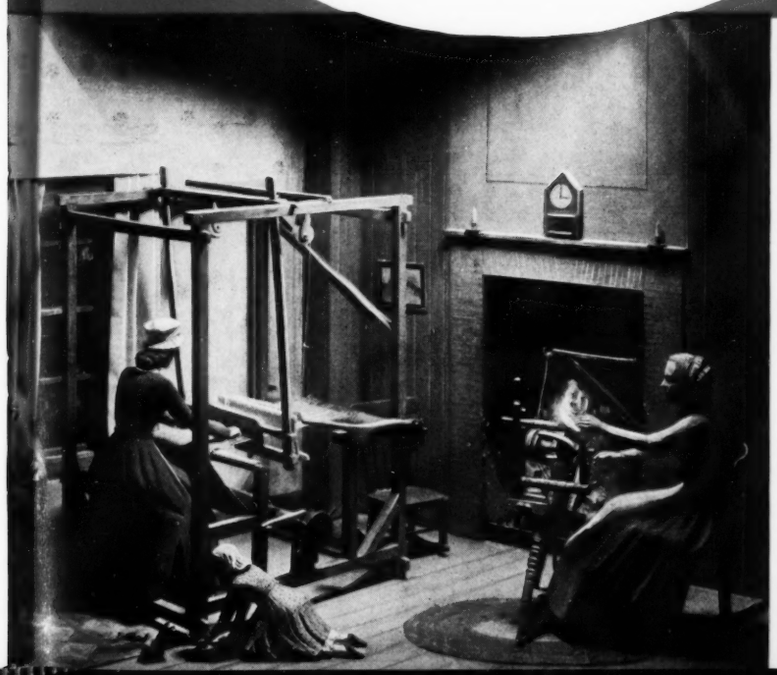
Thousands of Plants Agree Socony-Vacuum Places at their Disposal the Greatest Experience in the Oil Industry

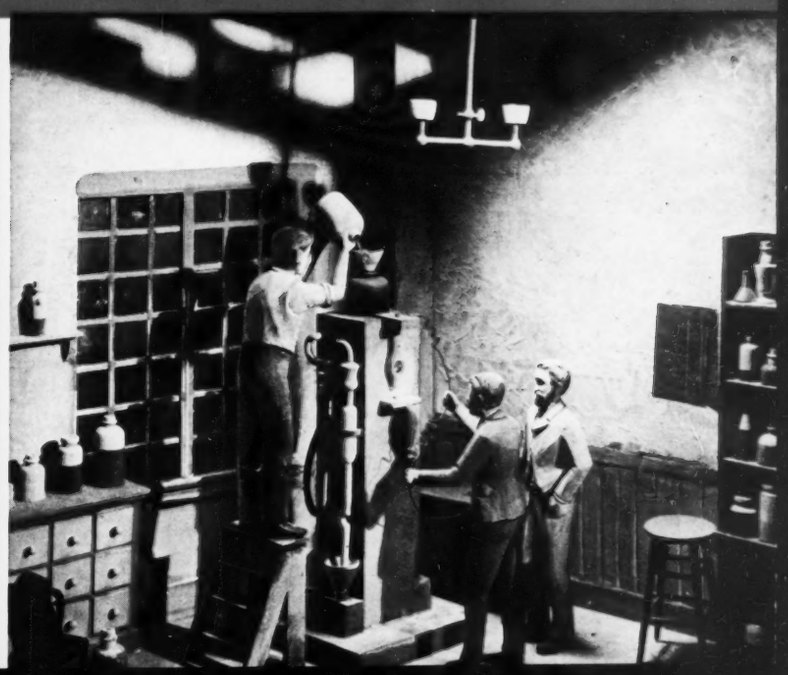
● THE MAKERS OF Gargoyle Lubricants were in at the beginning . . . working side by side with many early prophets of present day industry . . . providing the right kind of oils.

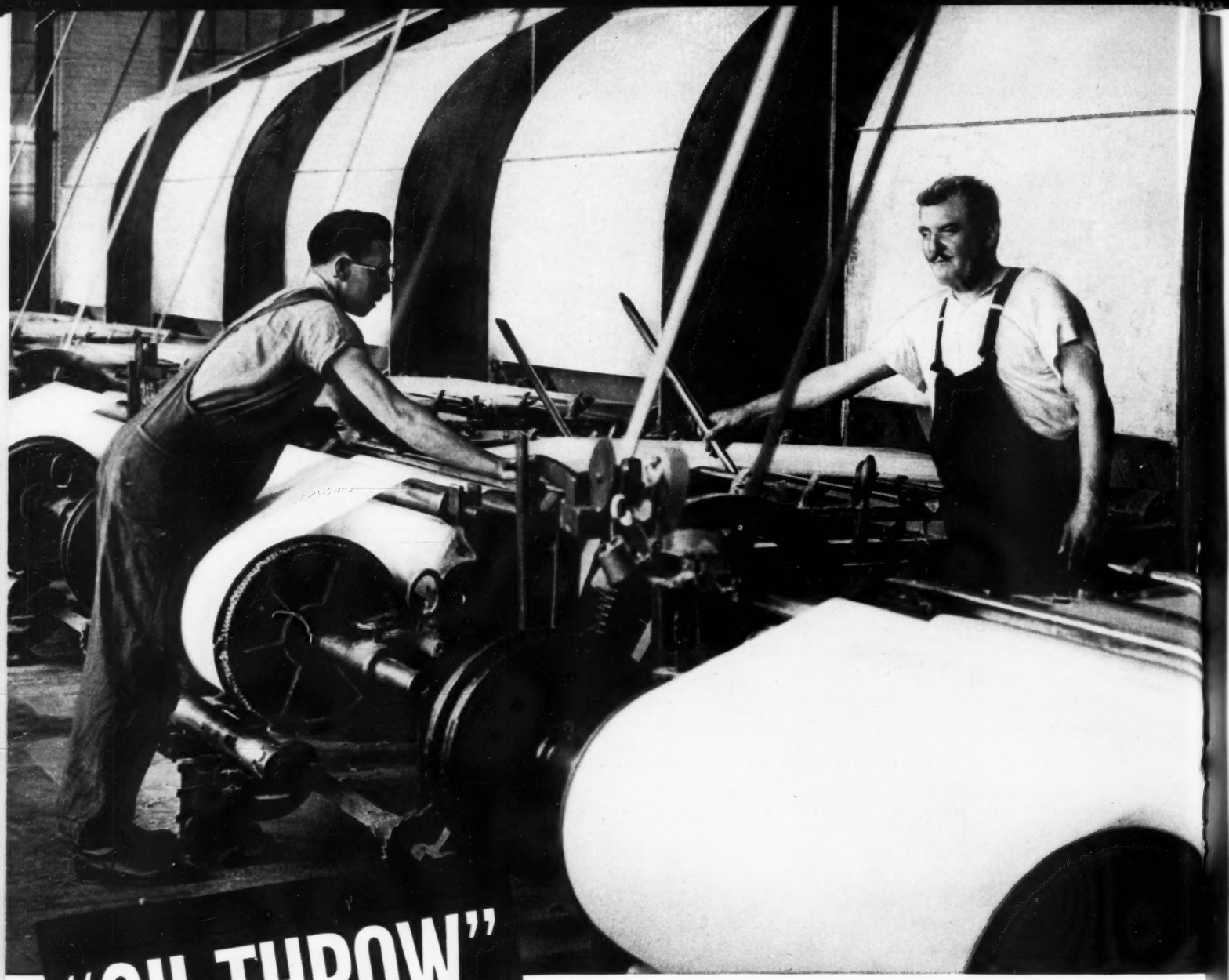
Since 1866 Gargoyle Lubricants have been accepted as the standard of excellence. Today, with 70 years of experience back of them, they are helping American Industry modernize itself.

This exclusive experience enables men and machines to step up plant efficiency . . . increase operating profits.

PROFIT BY READING THE NEXT PAGE







"OIL THROW" NOT NECESSARY!

Gargoyle Lubricants backed by Socony-Vacuum speed operations—no spoilage

FOR MANY YEARS textile men found it necessary to choose between insufficient lubrication of expensive units or "oil throw" when machinery was properly lubricated. It is not so today! For Socony-Vacuum works with the builders as well as users of textile machinery in providing "Correct Lubrication." This means that spinning frames, looms, carding machines, etc., can be operated at higher speeds without incurring the risk of greater spoilage. Thus, the consistent use of Gargoyle Lubricants will help your men to increase your profits.

WHEN you talk with the Socony-Vacuum Representative, ask him to "get down to Brass Tacks"... show you how your men can benefit by our textile experience.

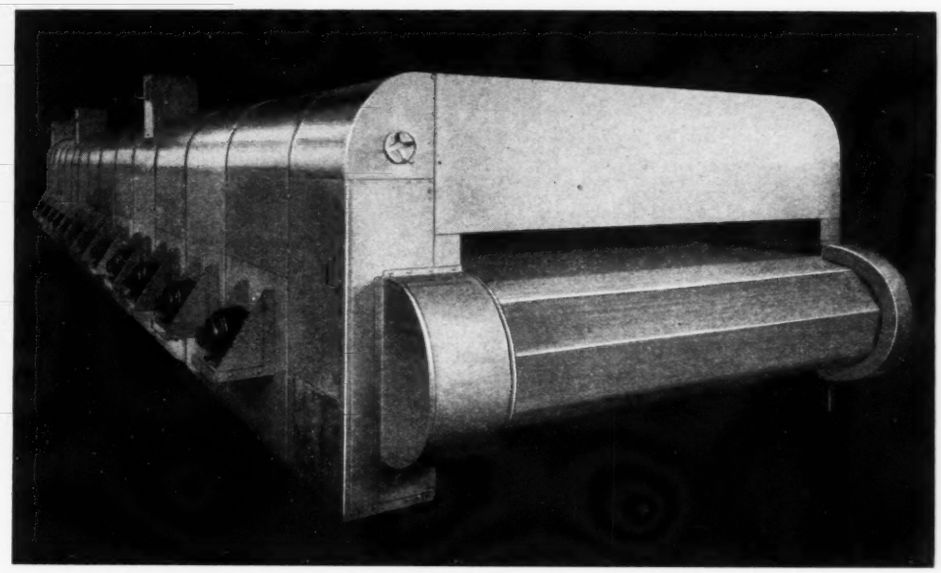
GARGOYLE

Lubricants

SOCONY-VACUUM OIL CO.
INCORPORATED

STANDARD OIL OF NEW YORK DIVISION · WHITE STAR DIVISION · LUBRITE DIVISION · WHITE EAGLE DIVISION
WADHAMS OIL COMPANY · MAGNOLIA PETROLEUM COMPANY · GENERAL PETROLEUM CORPORATION OF CALIFORNIA

Modern Drying Equipment



One Apron Stock Dryer

NEWEST DESIGN

A leader in its field. This Sargent Stock Dryer has proven its worth to many satisfied users. This general acceptance by owners can be attributed only to the superiority of design, materials and workmanship so characteristic of these machines.

FEATURES:

Centrifugal fans, direct motor connected, New type coils, Sectional Conveyor with speed control.

--NEW PATENTED CURVED TOP--

reduces air resistance—promotes free air flow.

SARGENT PRODUCTS

Acidifying Machine—Automatic Extractor—Automatic Feeders—Backwashers — Backwash Dryers — Bagging Machines—Ball Winder—Carbonizing Dryers—Carbonizing Dusters — Cotton Stock Dryers — Crush Roll Machines—Press Roll Machines —Single Apron Dryer—Skein Dryer —Special Dryers—Wool Dryers—Wool Washers—Yarn Conditioners —Yarn Scouring Machines.

C. G. SARGENT'S SONS CORPORATION

Graniteville, Mass.—Founded 1852

Southern Agents:
Fred H. White, Charlotte, N. C.
Fred P. Brooks, Atlanta, Ga.

Philadelphia Agent:
F. E. Wasson,
Drexel Bldg.

SARGENT IS THE PIONEER AMERICAN BUILDER OF DRYERS

One Operative Tends 100 Spindles, Using A Cone Or Tube Supply

The installation shown above is in the plant of a well known package dyer. Two gangs, fifty spindles to a side, are placed end to end, so that, when a large supply (such as a cone or tube) is used, one operative can tend 100 spindles.

Equipped with drum drive, the machines provide a uniform winding speed regardless of the diameter of the package. Therefore, the operative can start the spindles in rotation and doff in the same rotation, without leaving any spindle idle for any length of time.

The uniform speed also permits more uniform pressure and tension on the yarn, resulting in more uniform density from package to package and therefore more even dyeing.

The high, uniform speed at which this machine runs permits the operative to earn more money, because of a large increase in production, and at the same time effects a material reduction in labor cost.

Further details on request.

FOSTER MODEL 102

FOSTER MACHINE COMPANY
WESTFIELD, MASS.

FRED P. BROOKS, Representative
P. O. Box 941 ATLANTA, GA.

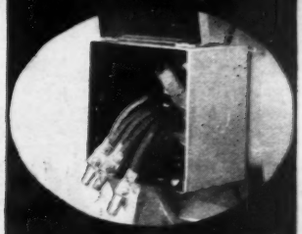
For Winding Dyeing Packages

STEEL FOR STRENGTH

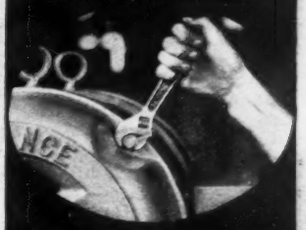
Squirrel-cage Reliance Induction Motor with Ball Bearings
(Type "AA", Open-slot Frames 444—585)

STRENGTH INDEED! An all-steel frame to start with, as essential to a motor as good, healthy bone structure to the body. Supplemented by husky bearing brackets, shafts, bearings and other "organs". Altogether, a rugged, long-lived unit of equipment that cares not how *heavy* your heavy-duty service may be. That's the Reliance Type "AA" Motor all over . . . An organization committed to lengthening motor life by incorporating every endurance feature . . . An adequate, trained force ready to hop on your job personally—and with dispatch . . . Weigh these features when considering sources of supply.

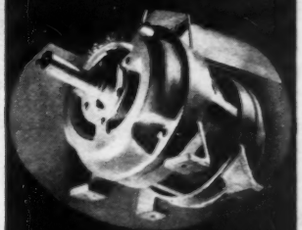
RELIANCE ELECTRIC & ENGINEERING COMPANY
1088 IVANHOE ROAD CLEVELAND, OHIO
Branches: Boston, Buffalo, Chicago, Cincinnati, Detroit, New York, Philadelphia, Pittsburgh, Greenville, (S. C.). *Representatives in other principal cities*



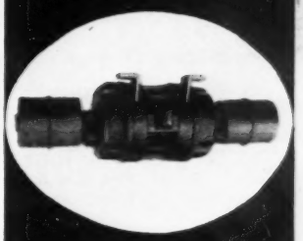
There's a lot of room for making connections in the conduit outlet box. Conduit can be brought in from the top, bottom or either side.



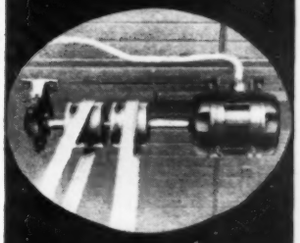
The wrenches commonly used for maintenance work will reach all bolt heads.



The bottoms of the cast-steel feet are finished and base holes are jig-drilled.



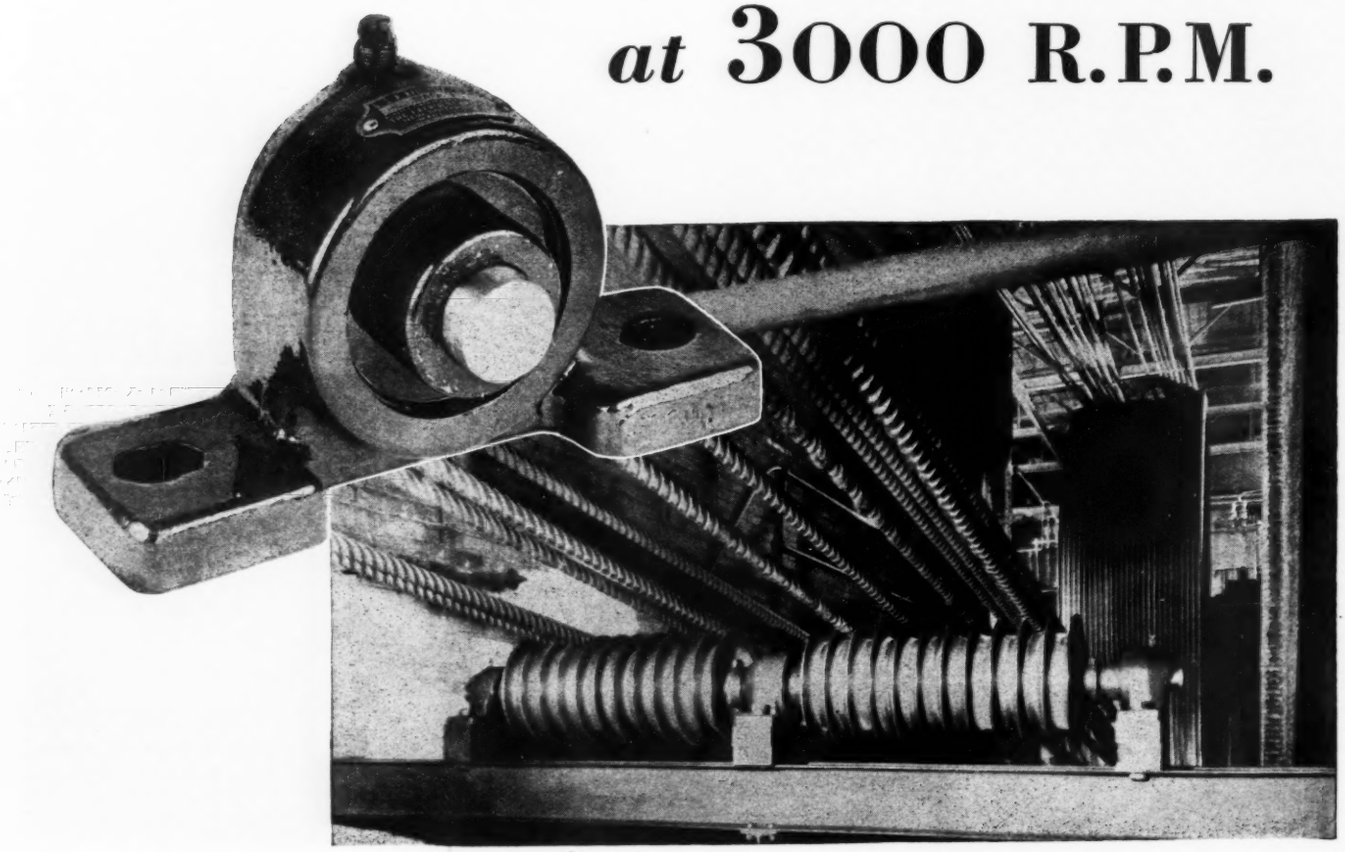
Motor for 4-frame drive for ceiling mounting. Double shaft extension, double pulleys, ring-oiling sleeve bearings.



A 2-frame universal 3-bearing drive.

RELIANCE A-C D-C MOTORS

Operating Smoothly *at* 3000 R.P.M.



Three Fafnir Single Ball Bearing Pillow Blocks keep the $2^{15}/_{16}$ inch countershaft in this South Carolina textile mill operating smoothly even at 3,000 r.p.m. Special conditions dictated the use of this rather uncommon three-in-line installation on the idler pulley of the auxiliary rope drive... a typical example of Fafnir's engineering service and ability to meet every field condition with the correct bearing from "the most complete line of types and sizes in America."

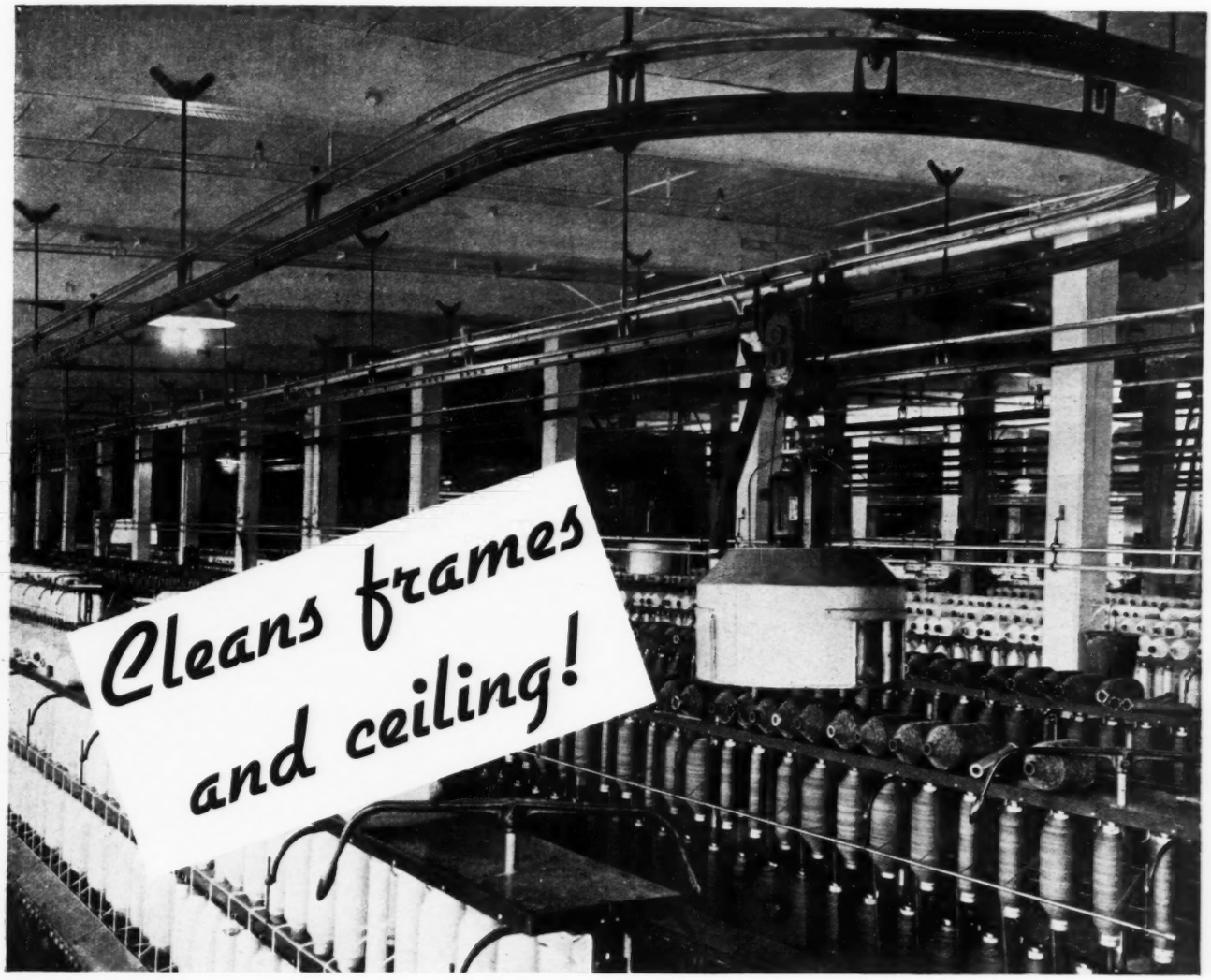
The quality of workmanship and design which characterize all Fafnirs and the completeness of the line assure the ideal anti-friction bearing for each and every service in the textile industry. Builders and users alike find that it pays to specify "Fafnir Ball Bearings" to gain lowest-cost machine performance over long periods of time.

Send for the complete details of Fafnir's service to the textile industry. The Fafnir Bearing Company, New Britain, Connecticut. Representatives also at: Atlanta, Georgia . . . Houston, Texas . . . Charlotte, North Carolina . . . Boston, Massachusetts . . . Dallas, Texas . . . Birmingham, Alabama.

FAFNIR BALL BEARINGS ARE NOW IN SERVICE IN SUCH TEXTILE MACHINERY AS THE FOLLOWING:

Bale Breakers	Dyeing Equipment
Feeders	Extractors
Openers	Dryers
Feed Tables	Printing Machinery
Distributors	Agers
Breaker Lappers	Soapers
Intermediate Lappers	Tenter Frames
Finisher Lappers	Calenders
Cards	Button Breakers
Roving Frames	Shoddy Pickers
Spinning Frames	Garnett Machines
Twisters	Burr Pickers
Winders	Mixing Pickers
Warpers	Scourers
Slashers	Fulling Mills
Looms	Shearing Machines
Bleaching Equipment	Rayon Pot Spinners

FAFNIR BALL BEARINGS



Advantages:

Roving protected against damage.

◆

Shorter cleaning intervals.

◆

Cyclonic Action cleans efficiently.

◆

Covers more frames.

◆

Velocity adjusted to desired area.

◆

Unit cannot jump track.

◆

No condensation from humidifiers.

LINT no longer accumulates on textile machinery nor on the ceiling in mills where the American MonoRail Overhead Cleaner is installed. • A cyclone of air swirls down on the machines and at the same time a heavy blast cleans the ceiling while the unit travels around its overhead track circuit. • With the proper cleaning interval, lint cannot accumulate — hand cleaning is unnecessary — spinners handle more sides and produce more and cleaner yarn. Cleaning velocities are adjustable to prevent damage to roving, yet maintain efficient removal of lint. • Let our engineers explain further advantages. Write to the American MonoRail Co., 13106 Athens Ave., Cleveland, Ohio, or to Curran S. Easley, 509 Masonic Temple, Greenville, S. C.

AMERICAN MONORAIL *Automatic* **OVERHEAD CLEANERS**

for Spinning, Winding, Spooling and Warping

ANOTHER PAGE FROM A TEXTILE SUCCESS STORY

TEN-YEAR HISTORY OF TAYLOR AUTOMATIC SLASHER CONTROL FILLED WITH CASES OF ITS SAVINGS AND PRODUCTION ADVANTAGES. A RICH EXPERIENCE OF MILL PIONEERING AND ENGINEERING AVAILABLE TODAY FOR YOUR SLASHING ROOM

An Arkwright test of vital interest to mill men
ONE of the most prominent eastern mills was the theatre of this test—of uncommon interest to every textile man.
The object was to determine accurately the difference between manual control and automatic temperature regulation in the slashing process. The Tycos Slasher Control System was chosen for the automatic part of the test.
16% decrease in warp breakage
Perhaps the most outstanding revelation was a decrease of 16% in the number of warp breaks in the weave room when the Tycos system was in operation. This was figured on the basis of a thoroughgoing thousand loom hour test. With manual control there were 1040 warp breaks while with the Tycos system holding the helm there were but 872 breaks. The product woven was a sateen, 34 inches wide 12's carded yarn in warp, 60 sley, cloth 1.68 yds. per pound.
In addition it was definitely shown that slasher production was increased. The amount of starch necessary was cut down from 180 to 160 lbs. Steam consumption fell appreciably. Tycos came out in this test—far in the lead.
Here was a test undertaken with the most exacting supervision. It brought out unmistakably the facts as already proved in other mills. (Refer to Arkwright test No. 25.)
The Tycos Slasher Control System can save substantially in your mill. Let us tell you all about it. Write.
Taylor Instrument Companies
ROCHESTER, N. Y., U. S. A.
TYCOS SLASHER CONTROL SYSTEM
for Guaranteed Results

FROM the development of the first Taylor Slasher Control System, mills could rely on their successful operation. The proof of a 1930 Taylor advertisement tells what happened in one mill. And installation after installation during the past ten years provides additional proof that a Taylor System of Automatic Temperature Control is one of the most economical and profitable investments a mill can make today.

The reason is that every Taylor System installed in the slashing process is engineered to accomplish definite results. When it is put into operation, Taylor Engineers check its ability to produce those results. This means that they must know and meet the particular needs and conditions in each mill. The Taylor System is adapted and tailored to fit each case.

But the general results are always the same—increased speed of production, more uniform slashing, savings in starch, steam and raw material, greater efficiency in the weaving room and more uniform finished goods.

Let us help you determine how a Taylor Control System can save money in your slashing room. Ask a Taylor Representative, or write to Taylor Instrument Companies, Rochester, N. Y., or Toronto, Canada. Manufacturers in Great Britain—Short & Mason, Ltd., London, England.

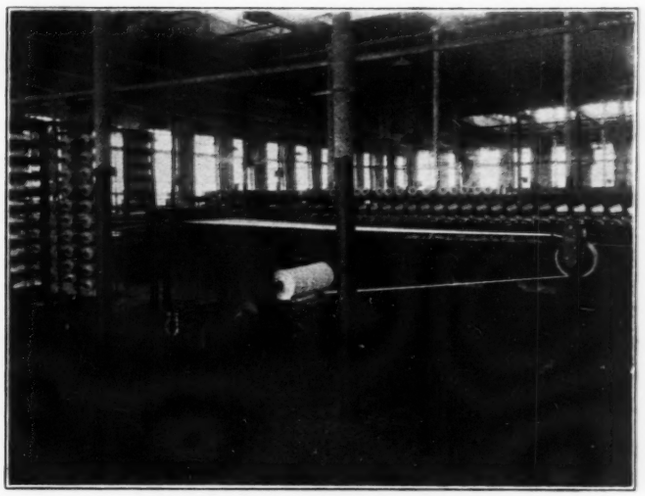
IN 1930 the above advertisement on "Tycos Slasher Control" ran in a textile magazine. Advertising today of Taylor Slasher Control carries on the story of the pioneers in this type of temperature control for mills.

Taylor

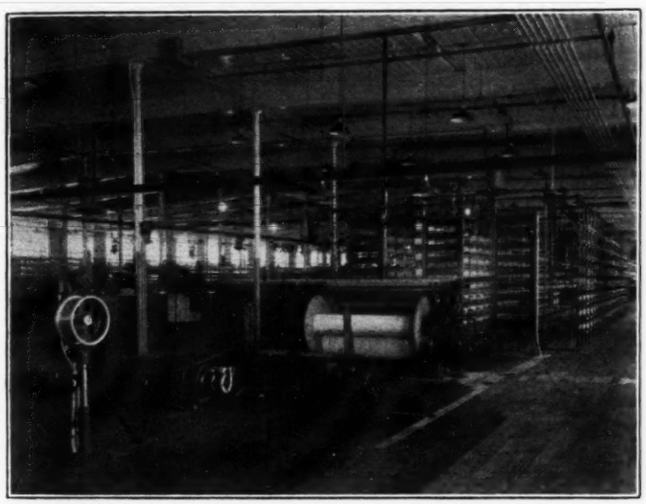
Indicating Recording • Controlling

TEMPERATURE, PRESSURE *and* **FLOW INSTRUMENTS**

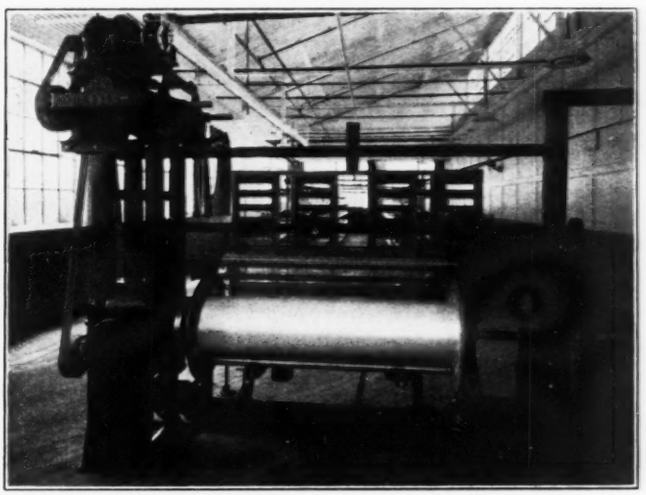
High Speed Section Beam Warper
With Magazine Cone Creel And Eyeboard Stop Motion
WARPING COTTON YARNS



High Speed Balling Warper
With Magazine Cone Creel And Eyeboard Stop Motion
WARPING COTTON YARNS



Combination High Speed Section Beam And Balling Warper
With Magazine Cone Creel And Eyeboard Stop Motion
WARPING COTTON YARNS



High Speed Spindle Driven Beaming Warper
With Magazine Cone Creel And Eyeboard Stop Motion
WARPING COTTON AND SYNTHETIC YARNS

COCKER—HIGH SPEED

WARPERS — CONE CREELS — SLASHERS
WARP PREPARATION EQUIPMENT

for ECONOMY — EFFICIENCY — BETTER FABRICS
for HANDLING COTTON & SYNTHETIC YARNS

Write us for Quotations, Descriptive Details, Etc.

COCKER MACHINE & FOUNDRY CO.

Main OFFICE and Plant
GASTONIA, N. C.
Northern and Canadian Agents;
J. S. FALLOW & CO., NEW BEDFORD, MASS.

WARP LINKING - BALLING - SNAKING - DYEING - SIZING - BEAMING - GASSING EQUIPMENT

Burroughs

PLAN YOUR PAYROLL ACCOUNTING NOW

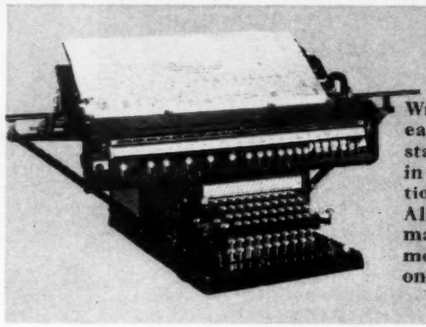
to obtain the information required by the

SOCIAL SECURITY ACT

Many employers are finding in recent Burroughs developments a simple solution of the accounting problems set up by the Federal Social Security Act. Often the exceptional speed, ease and economy of new Burroughs machines make it possible for employers actually to lower accounting costs and still have the additional information required.

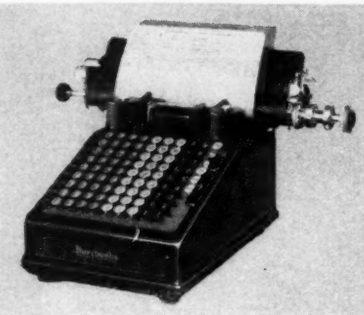
In fact, many say: "We are glad the Social Security Act prompted us to investigate, because we now have the complete payroll accounting system we have needed for a long time."

Investigate. Let a Burroughs representative assist you in meeting your payroll problems now, so you will be prepared to furnish the information required by the Act when it becomes effective the first of the year.



BURROUGHS TYPEWRITER ACCOUNTING MACHINE

Writes check (or pay envelope), earnings record, employee's statement and payroll summary in one operation. Column selection automatically controlled. All totals accumulated. This machine is only one of several models; payroll work is only one of the many jobs they do.

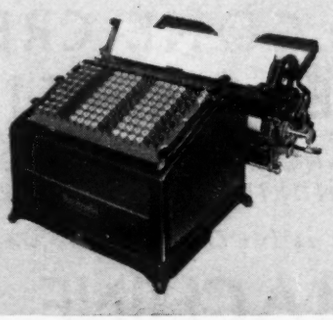


BURROUGHS DESK BOOKKEEPING MACHINE

Posts earnings records, automatically prints dates in proper columns, automatically subtracts deductions—calculates net pay. Can also be used as a fast, practical adding-subtracting machine for all kinds of accounting work. Many styles and many models—all low in price.

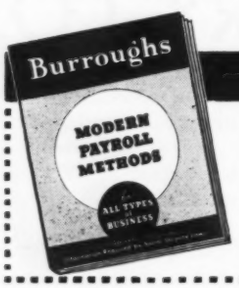
BURROUGHS CHECK-WRITING TYPEWRITER

Writes payroll checks in units or in strips. Payroll summary completed in same operation. Fast and easy insertion and removal of checks. Can also be used as a typewriter for correspondence and general typing. Electric carriage operation. Several models.



BURROUGHS AUTOMATIC PAYROLL MACHINE

Writes check (or pay envelope), employee's earnings statement, earnings record and payroll summary in one operation. Accumulates all necessary totals. Many models for payroll work, as well as for scores of other accounting jobs.



SEND FOR THIS NEW PAYROLL FOLDER!

BURROUGHS ADDING MACHINE COMPANY, 6748 SECOND BLVD., DETROIT, MICH.

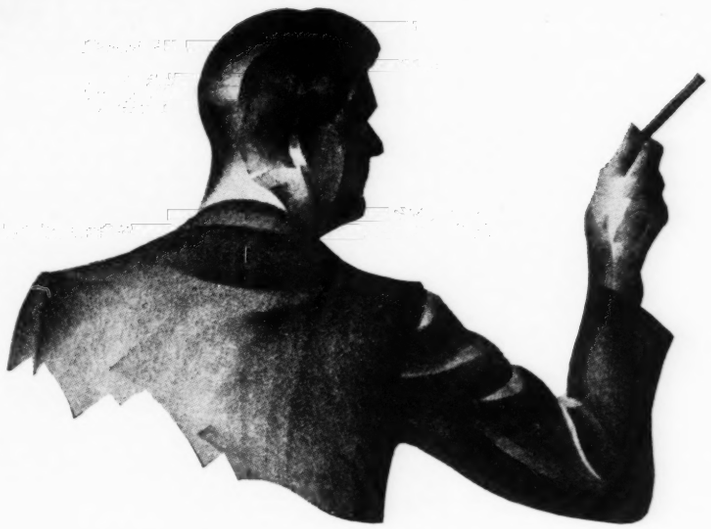
Send me the new folder "Modern Payroll Methods," illustrating complete payroll accounting methods, with typical entries and suitable column headings for maintaining the information required by the Social Security Act.

Name_____ Address_____

BUSINESS IS BETTER

Are you ready with the Best

FOR THE PRINTING SEASON?



WE'RE ready to supply you with textile chemicals for every printing need.

Our HYDROSULFITE A. W. C. is available in varied forms — lumps, pea size, rice size, and powdered — all uniform in size, quality and strength. The purity of our HYDROSULFITE is your assurance of perfect discharges, sharp lines and thorough penetration.

HYDROSULFITE OF SODA CONC. is offered for the reduction of vat dyes and stripping silks.

GUM ARABIC & GUM TRAGACANTH SOLUTIONS are especially clean and smooth—all bark, grit and impurities are removed and the gum treated with the special process used for our SUPERTEX.

Our printing gums meet any and all textile requirements. SUPERTEX has no equal for penetration, absolute purity and complete solubility. VAT GUM W-958 contains the required amounts of hydrosulfite and alkali and is unexcelled as a thickener for vat colors.

HYDROGUM is a combination of printing gums and HYDROSULFITE A. W. C. — absolutely clear, thoroughly strained, and ready for use. It gives cleaner work in any discharge operation.

Write us if you have a special printing problem—the facilities of our laboratories are always at your disposal without cost or obligation.

Our stocks include, in addition to those listed, many staple products for the textile printer. Our chemists will be glad to work with you on any variation of these products to meet your specific requirements.

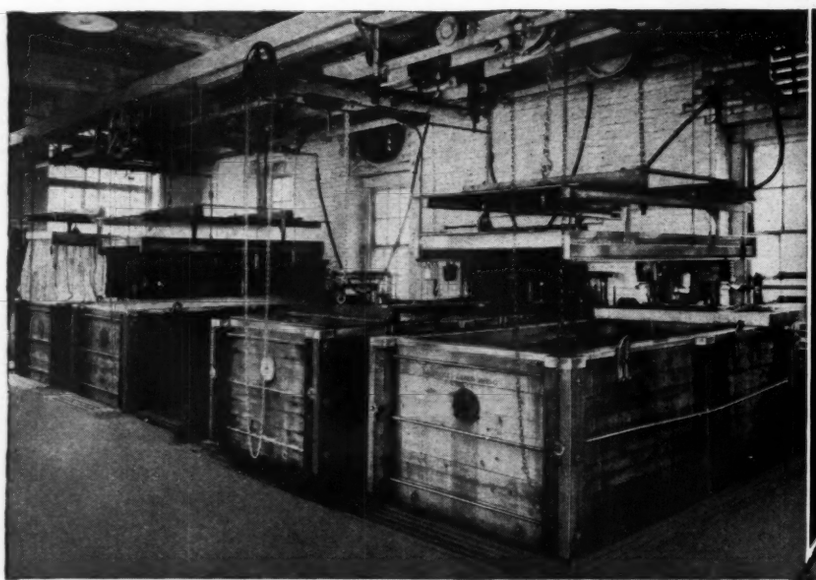
- ☐ HYDROSULFITE A. W. C.
- ☐ HYDROSULFITE OF SODA CONC.
- ☐ LEUCOTROPE W
- ☐ PRINTING GUMS
  - SUPERTEX NO. 100
  - SUPERTEX S
  - TEXTILE GUM CA-36
  - VAT GUM W-958
- ☐ GUM ARABIC SOLUTION
- ☐ GUM TRAGACANTH SOLUTION
- ☐ HYDROGUM
- ☐ STEAM BLACK S-193
- ☐ PIGMENT WHITES
- ☐ FINISHING OIL W-939A
- ☐ STRIPPING AGENTS
- ☐ PRINTERS' BLANKETS
- ☐ PRINTERS' LAPPINGS

JACQUES WOLF & CO.

MANUFACTURING CHEMISTS AND IMPORTERS . . . PASSAIC, NEW JERSEY

Warehouses: **Providence, R. I.; Philadelphia, Pa.; Utica, N.Y.; Chicago, Ill.; Greenville, S.C.; Chattanooga, Tenn.**

FOR *Skein-dyeing* with NEVER A STAIN



Hussong-Walker-Davis made these 4 machines of MONEL *to turn out smooth work at low cost*

● *Installation photo showing four Monel-equipped skein dyeing machines, of 300# cotton yarn capacity. The machine on the left is loaded with cotton yarn preparatory to dyeing. The machine next to it is shown carrying a load after being dyed. The third machine from the left shows the yarn rack lowered into the machine and the endmost machine is shown with the yarn rack elevated. All metal parts that contact the dye liquor in these machines are of Monel including the linings, headboards, agitators, steam pipes and covers, and the yarn rack. These machines are especially equipped with Monel screen. They are used for dyeing cotton yarn, cotton tape and circular braid and laces. Manufactured and installed by the Hussong-Walker-Davis Co., Philadelphia, Pa.*

YOU don't get stains or off-colors from cotton yarn, cotton tape and braid dyed in the four machines shown here. Such flaws come mostly from rust and corrosion . . . and dyehouse men know from 25 years' experience that Monel* stands up under corrosion by dye liquors.

The makers of these skein dyeing machines, Hussong-Walker-Davis Co., used Monel for the linings, headboards, agitators, steam pipes and covers, yarn racks, yarn sticks, false bottoms, outlet plugs and linings.

Monel's smoothness is a big part of the reason why it is regarded as the standard corrosion resistant metal for the dyehouse. Its smooth surface cleans readily; you lose little time for boil-outs in changing colors.

And Monel's smoothness means it never snags the most delicate yarns or fabrics. Further, *the reason* it's smooth is that it is a solid metal, rust proof and corrosion resistant throughout. And since it resists corrosion from dye liquors, many acids and alkalies, and from peroxide bleaches, it outlives other metals by years in dyehouse service.

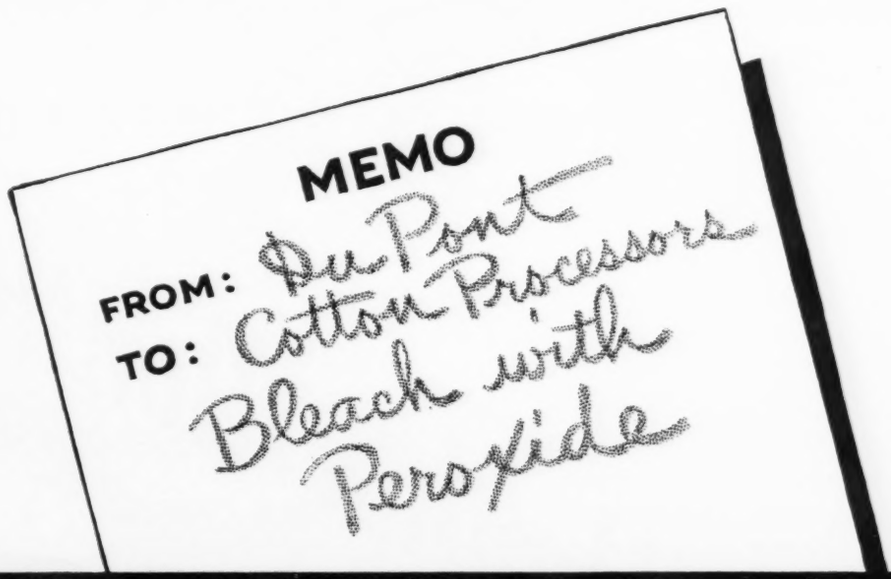
There's hardly a machine in your dyehouse that cannot give you better service at lower cost if made of Monel, the stronger-than-steel Nickel alloy. And since Monel is fabricated by all standard methods, it can go into any machine you're replacing. Write for your copy of "The Use of Monel Metal and Nickel for the Processing of Cotton, Silk and Rayon Piece Goods."

● *Close-up photo showing two of the four Monel-equipped Hussong-Walker-Davis skein dyeing machines. The close-up shows the patented shutter mechanism for locking the dye-sticks into place. In the machine in the foreground the shutter mechanism is lowered in the locked position. The yarn rack in the background shows the shutter mechanism elevated to permit removal of the yarn.*

• • •

*Monel is a registered trade-mark applied to an alloy containing approximately two-thirds Nickel and one-third copper. This alloy is mined, smelted, refined, rolled and marketed solely by International Nickel.

THE INTERNATIONAL NICKEL COMPANY, INC. 67 WALL STREET NEW YORK, N. Y.



And Save 25 to 30% in Peroxide Costs

by Bleaching with

SOLOZONE

REG. U. S. PAT. OFF.

YOU make this great saving on peroxide cost because *a dollar's worth of SOLOZONE* has the most bleaching oxygen for the money.* And as every bleacher knows, it's the bleaching oxygen in peroxide that does the bleaching. The required bleach takes so much bleaching oxygen; the less you pay for this oxygen, the more you save on the job.

Quite simple, isn't it? But it explains why SOLOZONE with 20% bleaching oxygen saves so much in the cost of peroxide. This saving is quite independent of any other economies you may be able to make in your process by using SOLOZONE. The type of cottons you are processing does not have to be considered, for whether you are processing heavy or light goods, knit goods, yarn-dyed shirtings, etc., it takes a certain amount of bleaching oxygen to give the required results. You can get these results—a high quality peroxide bleach—at the lowest cost for peroxide by using SOLOZONE.

Bleaching with SOLOZONE is *peroxide* bleaching, consequently this economical peroxide can be used for processing other textiles as well as cotton.

Write to our nearest district office for more information about SOLOZONE and its specific application for your bleaching.

Other R & H Chemicals for the textile industry include ALBONE* C (Hydrogen Peroxide, 100 Vol.), for bleaching all types of fabrics; Sodium Perborate, for oxidizing vats to clear, bright colors; Non-Flammable Solvents, Liquid Chlorine, Potash Carbonate, Potash Caustic, Bichromate Soda, Bichromate Potash, Caustic Soda, Soda Ash, Oxalic Acid, Formic Acid, Sodium Silico Fluoride, Soda Acetate, Soda Nitrite, Permanganate Potash, Yellow Prussiate Potash.

*REG. U. S. PAT. OFF.

*SOLOZONE *is the registered trade-mark for du Pont Sodium Peroxide. It is a stable powder, easily soluble in water and acid; contains 20% available bleaching oxygen, the largest amount of bleaching oxygen in any commercial peroxide. At 17c per lb. (base price),* SOLOZONE *is the lowest priced, highest strength peroxide available commercially.*

DU PONT
REG. U. S. PAT. OFF.

The R. & H. Chemicals Department
E. I. DU PONT DE NEMOURS & COMPANY, INC.
Wilmington, Delaware

District Sales Offices: Baltimore, Boston, Charlotte, Chicago, Cleveland, Kansas City, Newark, New York, Philadelphia, Pittsburgh, San Francisco

MONTHS of profit for you • when you insist on AQUAROL finish for your hosiery and piece goods.

● First sales are made on appearance; *repeat* sales . . . and profit . . . depend upon quality. AQUAROL-treated fabrics always please . . . they are spot resistant, water repellent, and wear longer.

● AQUAROL • is not a surface coating.

● It penetrates the fibre, insuring perfect water repellency . . . without affecting the texture . . . or influencing the free circulation of air through the fabric or garment.

● Recommended for knitted or woven, silk, rayon, cotton and woolen fabrics.

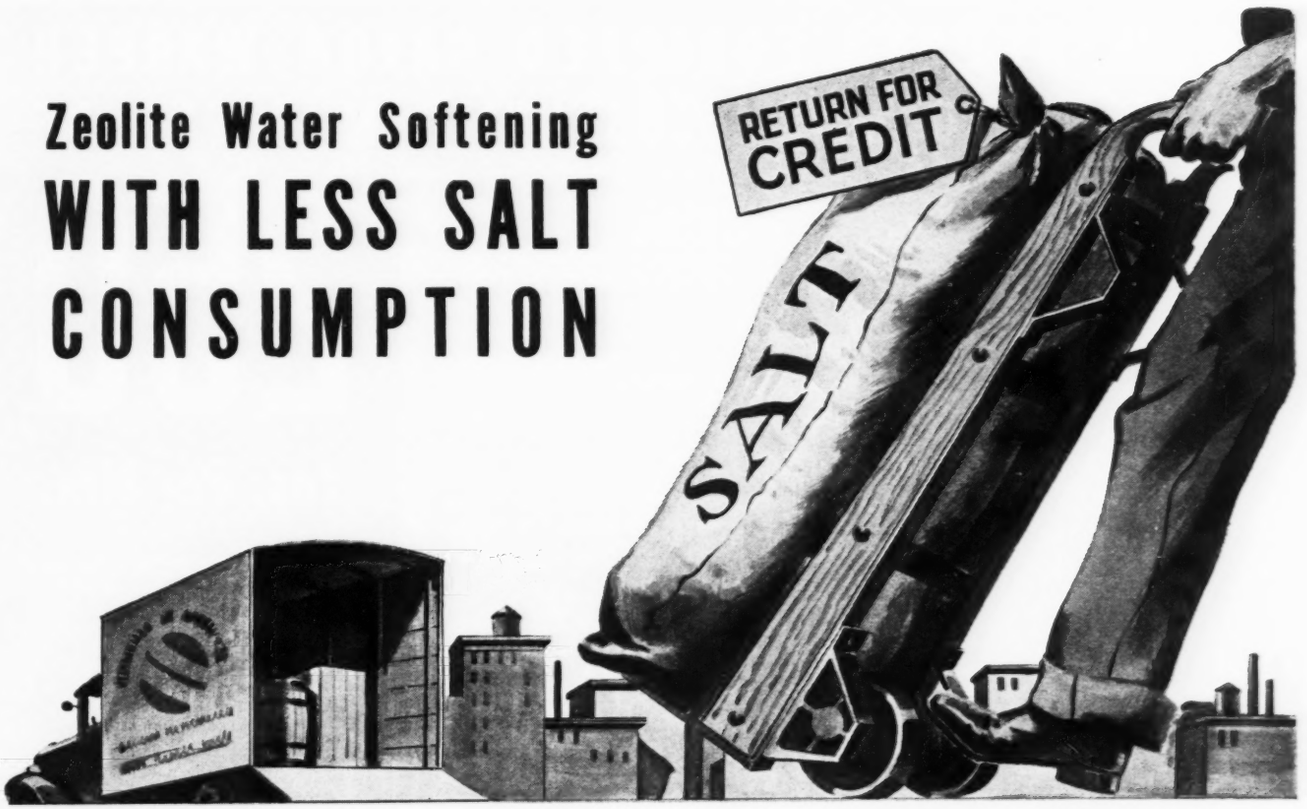
● Prove this yourself. Send for a trial order today.

ARKANSAS CO. INC. 233 BROADWAY NEW YORK CITY

AQUAROL

REG. U.S. PAT. OFF.

Zeolite Water Softening WITH LESS SALT CONSUMPTION



• Now zeolite water softening costs still less to operate. Because with the new SUPER-ZEO-DUR—the specially-treated Permutit greensand zeolite—you can get 75% more water softening capacity than with standard greensand zeolite.

Or you can use less salt than you are now using, and still get the water softening capacity you are now getting.

In other words, with Super-Zeo-Dur you have a big reserve of water softening capacity, ready at all times to meet extra demands—and without increasing your water softening equipment. And, in the meantime, you save salt.

In the average plant these savings will in two years be sufficient to pay the cost of converting your manually controlled Permutit zeolite water softener to the latest Permutit fully automatic equipment—complete with Super-Zeo-Dur refill.

Ask us for figures on money savings with SUPER-ZEO-DUR. Permutit specialists are always available to counsel you on any phase or problem of water conditioning. Use the coupon below.

Permutit
Water Conditioning

PERMUTIT WATER CONDITIONING EQUIPMENT may now be purchased under the terms of the National Housing Act. These loans are not made by the Government, but by your own banker . . . or they can be arranged through Permutit. The terms of payment allow gradual liquidation over a period of years, so your payments are more than met by the savings effected by Permutit.

THE PERMUTIT COMPANY, Dept. B1, 330 West 42nd St., New York, N. Y.

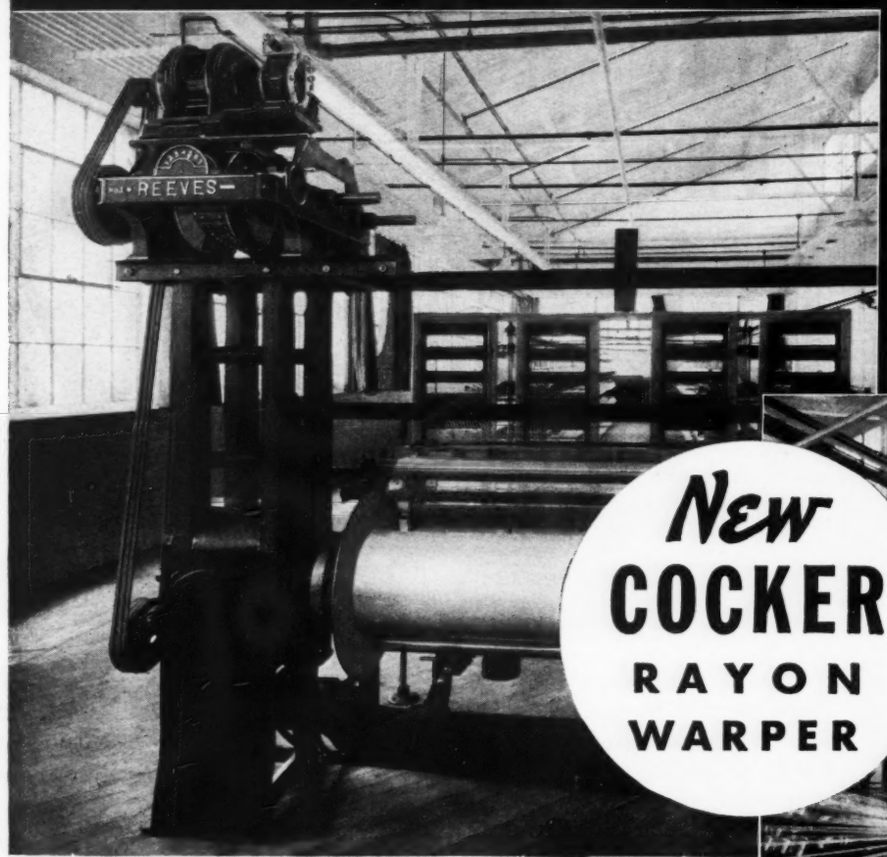
Please show me what I can save by changing to SUPER-ZEO-DUR.
Please show me how to overcome the water difficulty I have described as follows:

Name ---

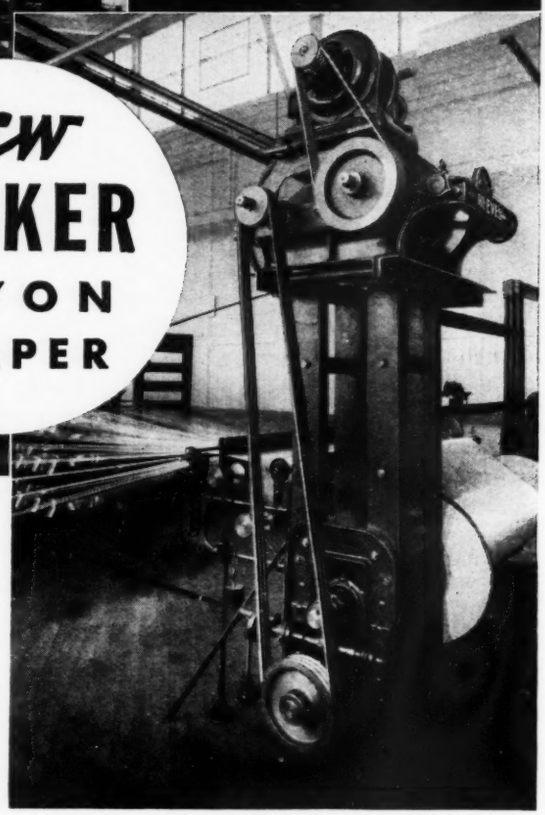
Company ---

Address ---

NEW REEVES-EQUIPPED RAYON WARPER AUTOMATICALLY HOLDS UNIFORM SPEED OF 250 Yds. Per Min.



New COCKER RAYON WARPER



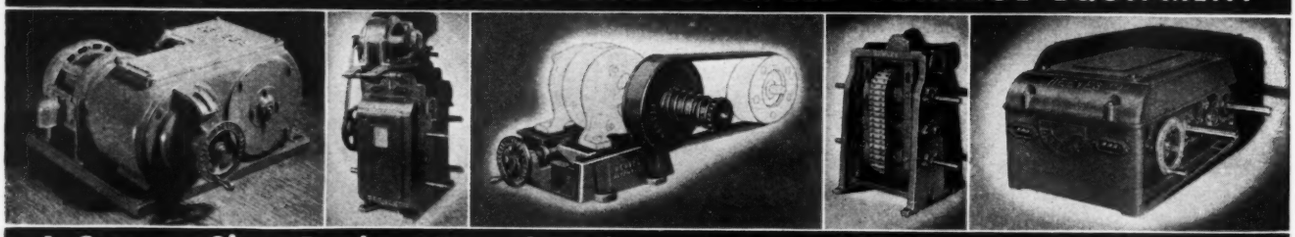
THIS is the new Cocker High-Speed Rayon Warper, standardly-equipped with the REEVES Variable Speed Transmission for completely automatic speed control. . . . Warps 1000 ends of 350 denier rayon—for pile fabrics—direct to a loom beam. Beam is driven by a spindle, instead of by covered cylinder. Ironing-type compressor insures smooth, level-weaving beam, with proper selvage and any desired degree of density. . . . REEVES automatic speed regulation accurately compensates for all variable factors—maintaining a uniform speed of 250 yards per minute.

Before you buy a new textile machine—no matter of what type—see that it is REEVES-equipped. This is important! The same regard for quality that prompts machine manufacturers to install the *best* in speed control equipment will insure a better machine throughout.

REEVES PULLEY COMPANY, COLUMBUS, INDIANA

Note: REEVES Transmissions also are available for any type installation on machines now in service. You incur no obligation in writing REEVES engineers regarding your specific requirements.

REEVES BUILDS A COMPLETE LINE OF SPEED CONTROL EQUIPMENT



A Correct Size, Design, Speed Ratio and Control for Every Requirement

"Good weaving begins at the slasher."

THE efficiency of the weave room and the productiveness of the looms depends to a large extent upon the conditioning of warps at the slashers—the slasher efficiency depends on the size mixture used.

The finest size mixture obtainable can be produced from ordinary pearl starch, any brand, liquefied with ARCY. ARCY carries the conversion to just the right degree for maximum sizing value and no further. ARCY liquefaction assures every granule of starch being changed to liquid form, with no lumps.

This thin, transparent liquid is slow congealing, remaining liquid for a longer time at lower temperatures and possessing remarkable penetrating and binding properties.

ARCY is the only enzyme product that has stood the test of time. Its use in the cooking kettles is easy. It works efficiently under all conditions and on all grades of pearl starch.

An interesting booklet will be sent to any mill without obligation. Write for it today.

DRAKE CORPORATION, NORFOLK, VA.

ADVANTAGES RESULTING FROM THE USE OF ARCY, INCLUDE:

NO LUMPS—There are no troubles in the circulating pipes, as the thin solution produced by ARCY is slow congealing and remains liquid for a longer time at lower temperatures. Does not cake in the kettles.

INCREASED WEIGHT—Due to increased penetration of an ARCY solution there is added weight taken up by the warp yarns without any increase in the percent of solids used per finished gallon of size.

INCREASED TENSILE STRENGTH. Fibres of the yarn are cemented together, producing a well dressed thread. There is no danger of tendering even the most delicate yarn, as there are no injurious chemicals or oxidizing agents present.

LESS SHEDDING—The increased binding properties of the starch reduces to a minimum shedding of short fibres, and enables the yarn to withstand the chafing of the reed.

SMOOTH FINISH—The yarn is smooth and does not have a saw-tooth feel, because the starch has been completely liquefied.

MINIMUM LOOM STOPPAGE due to the less tendency for the knots to break the companion thread. This smooth surface also prevents threads from hanging together in the shed where the shuttle breaks them. The wide-open clear shed offers least resistance to the shuttle when passing through.

FINER FINISH AND BRIGHTER COLORS —The thin transparency of the starch does not cloud the colors, frosty splotches are prevented and all colors show up brighter than when the dyed threads are coated with less transparent starch solutions. Thin soluble starch also assists the finisher to get a superior finish in bleaching.

A R C Y

VALUABLE ARTICLES

A- **"Roving Frame Cones," "The Compound As Applied to Cotton Roving Frames," and "Roving Frame Tensions."** These three articles by Fay H. Martin go into the reason that roving frame cones are concave and convex, describe the "mysterious" compound, and explain the tension at the start and finish of bobbins on roving frames. The three articles are illustrated and are written in a simple manner that even the beginner may grasp. **Price for set of three—35 cents.**

B- **"A Study of the Twister Ring."** This is a five page discussion of wet twisting, dry twisting, cleaning band rings, selecting the proper ring size, and method of lubricating twisting rings. It is illustrated. Figures and practices are included based upon current mill practice under varying conditions. **Price—20 cents each.**

C- **"Theoretical Twist versus Actual Twist"** by A. F. Bissonnette. Here is a discussion on figuring twist, difference in amount of twist on upward and downward stroke of rail and a letter in which a contributor takes issue with author. A good article for overseers and section men in spinning room to read and discuss. **Price—20 cents each.**

D- **"A Practical Analysis of Large Package Spinning."** In which the author takes the matter of large package spinning apart to see what makes it tick. **Price 20 cents each.**

E- **"The Spinning Ring."** This is a practical discussion of spinning rings which will add to the knowledge of the reader on this subject. It tells briefly how rings are made, how to select the right rings for certain work, and discusses the tendency toward narrower flanges. **Price—20 cents each.**

F- **"Some Textile Machinery Applications of Variable Speed Drives"** by H. H. Iler. Here a prominent southern operating executive describes a number of applications of variable speed driving mechanisms to textile manufacturing; he gives his experience in the cotton mill and finishing plant with one type of equipment for this purpose. **Price—25 cents each.**

G- **"Uses and Advantages of Anti-Friction Bearings on Textile Machinery."** An eight-page illustrated discussion of anti-friction bearings in the textile industry. **Price—35 cents.**

H- **"Straightening Needles for Full-Fashioned Machines"** by B. D. Gaddy. Here is how a leading hosiery manufacturer instructs his knitters to straighten needles. **Price—20 cents.**

I- **"Improvements in Equipment and Methods of Boarding Hosiery"** by B. D. Gaddy. The same author gives some practical discussions and suggestions on the operation of boarding. **Price—20 cents each.**

J- **"Eliminating 'Washboard' Effects in Manufacturing Ringless Hosiery"** by Henry W. Hoffmann. This will be an asset to the library of any hosiery manufacturer. It goes into buying of silk, soaking, twist and its import, coning and the proper settings. **Price—20 cents each.**

K- **"Sizing Hosiery from Full-Fashioned Machines"** by B. D. Gaddy. This is a condensed discussion of the problem of preventing uneven lengths in hosiery. **Price—20 cents each.**

L- **"A Seamless Hosiery Cost Method"** by Fred T. Gaines. Every seamless manufacturer, especially those making half-hose, should study this article. It gives in a complete and clear manner a reliable method of estimating costs. **Price—30 cents each.**

M- **"Warp Breakage—A study of Its Importance and Elimination"** by Albert Palmer. Some of the causes of loom stoppage and a discussion of knots and their proper use. **Price—20 cents each.**

N- **"Leno Weaving and Designing"** (in four parts) by Thomas Nelson. This series covers the elementary designs and the subsequent developments in the leno field. A 14 page discussion, illustrated, that men in this work will find instructive. **Price—60 cents each.**

O- **"The Importance of Cotton Classing and Grading at the Mill"** by H. H. Willis. In which the author points out the value of a good cotton man and gives a description of grade, length, and strength of cotton. Executives should look this discussion over. **Price—25 cents each.**

P- **"The Mill Village Problem."** A discussion of employee home ownership, labor turnover, and maintaining community standards. **Price—20 cents each.**

Q- **"The Faith that Is within Us," "Dynamite or Leaven?," "Not So Different," and "For Value Received."** Here are four essays by Marjorie A. Potwin, Ph.D., which discuss the labor situation in Southern mills. **Price Individually—25 cents. For all four—70 cents.**

Now Available In Pamphlet Form

A number of articles that have appeared in recent issues of COTTON created much interest and favorable comment throughout the textile industry, with such a demand for extra copies that they were reproduced in pamphlet form.

These pamphlets provide a source of up-to-date, practical and valuable information that will be found usable in every-day textile mill operation. They are available, so long as the supply lasts, at the prices indicated.

Designate pamphlets desired by alphabetical letter. Send cash with order.

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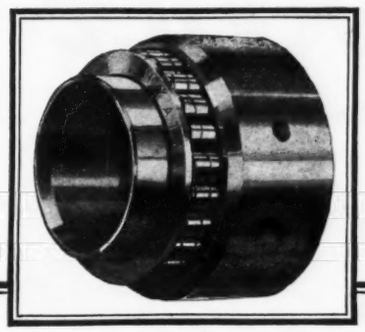
COTTON

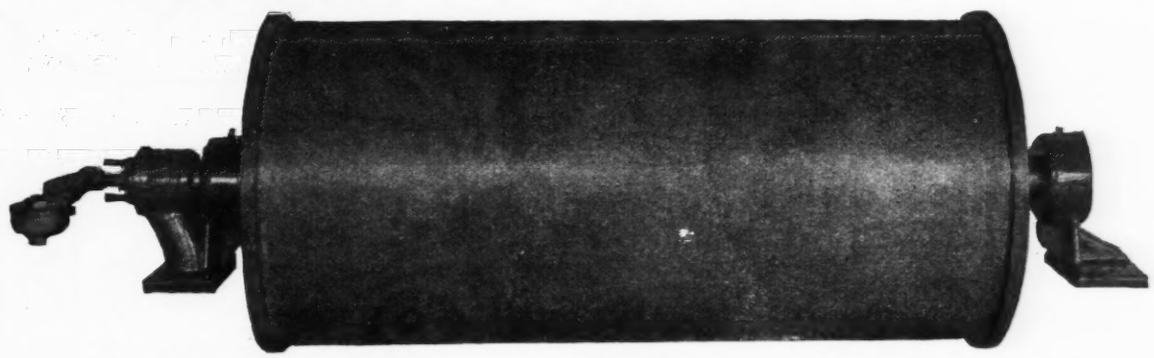
Serving the Textile Industries

GRANT BLDG., ATLANTA, GA.

A "NATURAL" DRY CAN BEARING



Thousands of these HYATT ROLLER BEARINGS have been installed on Dry Can Journals—Not One Has Ever Failed



H. W. BUTTERWORTH & SONS DRY CAN EQUIPPED WITH HYATT ROLLER BEARINGS

H. W. Butterworth & Sons Co., Philadelphia, have applied hundreds of these bearings and will tell you they are naturally suited to Dry Can installation because their straight line construction permits easy natural expansion thru the bearing along lubricated surfaces when the temperature rises, also smooth contraction when the can cools off.

Savings in packing cost alone will pay for Hyatts.

If you use a patented steam joint these bearings will protect your investment in that device.

There are more Hyatts on Dry Cans than all other makes of bearings put together. Specify Hyatts and benefit by the experience of many satisfied users. Write us for details and proof. Hyatt Roller Bearing Company, P.O. Box 476, Newark, N. J.

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Roller Bearings Proved by Performance

FOR *REAL SERVICE* ON BRASS FITTINGS *Come to Crane*

WHETHER your need for brass fittings is for an occasional piece or for a complete piping layout, your local Crane branch carries an exceptionally complete line ready for immediate delivery. There is no bother, no need of tiresome "shopping" to find the exact type of fitting you want. Crane has it and can supply your need immediately.

A good example of the extensiveness of the Crane line is afforded by the catalog page, shown to the right, which lists 19 different shapes of Crane Standard Brass Fittings which are regularly carried in stock. Each of them is a quality product that gives the most in service for one's money. Expert metallurgists check every batch of metal. Tapping is true and on the line. Threads are precise and clean. Tight joints are quickly and easily made.

For valves and fittings of brass, cast-iron, malleable iron or steel, come to Crane. Its lines are complete and unexcelled in merit. There is a Crane branch or distributor in your city or immediate vicinity.

For list prices on Crane Standard Brass Fittings (rough) see page 252, new Crane No. 52 Catalog. Dimensions on facing page No. 253

Let Profits Pay for Plant Improvements. Use the Crane Finance Plan.

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CRANE CO., GENERAL OFFICES: 836 SOUTH MICHIGAN AVENUE, CHICAGO, ILL. • NEW YORK: 23 W. 44TH STREET

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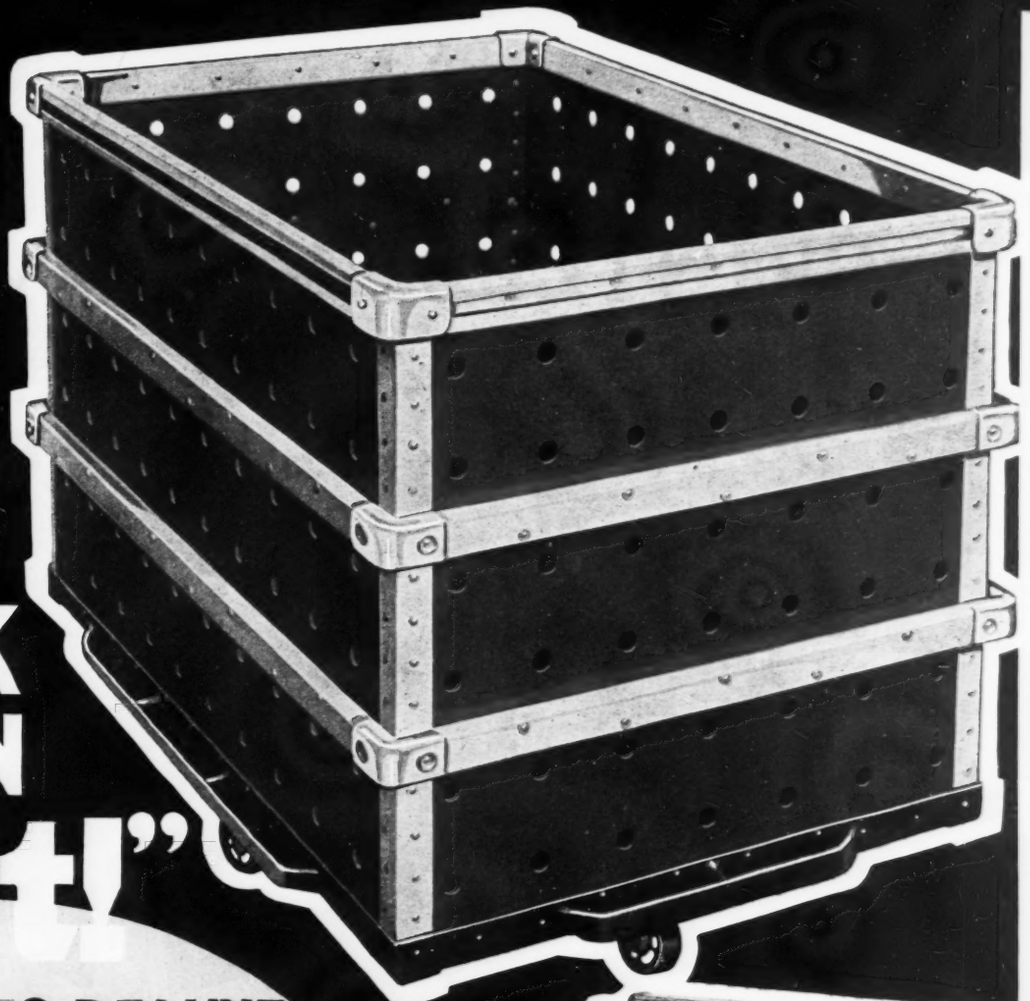
VALVES, FITTINGS, FABRICATED PIPE, PUMPS, HEATING AND PLUMBING MATERIAL

A TRUCK THAT CAN "take it!"



THE DILECTO DE LUXE CONDITIONING TRUCK

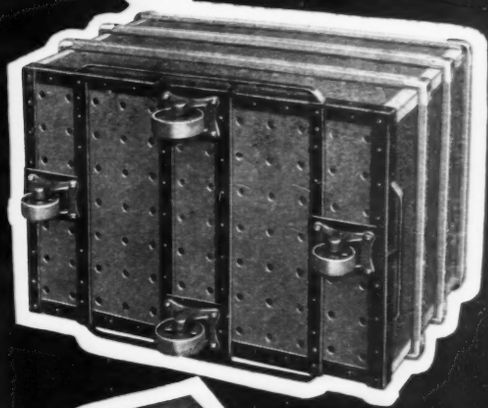
HERE'S a real champion among conditioning trucks. To stand up under the "slam-bang" daily grind it has to have the utmost in strength —to resist the action of steam and strong chemicals it has to be made of the right stuff. The DILECTO DELUXE CONDITIONING TRUCK meets all of these requirements.

The sides, ends and bottom are made of DILECTO; a laminated phenolic material which is unaffected by extreme humidity and chemicals; is as strong as iron yet is extremely light in weight (about half the weight of aluminum); is durable and has sufficient resilience to withstand damage from impact.

The DILECTO DELUXE CONDITIONING TRUCK is made to order and perforations can be of any size and frequency desired. All metal parts are rustproof plated except the bottom frame which is welded, riveted and painted. All rivets on the inside of the truck have a special smooth rounded head and are corrosion-proof. The top rim is flush with the sides and ends on the inside and has no exposed rivet heads on the outside. There are no exposed wood parts. Diamond Self-Oiling casters are standard but any type casters can be furnished.

If you haven't a copy of the DIAMOND FIBRE HOLLOW WARE catalog, mail the coupon today. This catalog shows the complete line of DIAMOND FIBRE HOLLOW WARE, including Roving Cans, Boxes, Trucks, Barrels, Baskets, and special equipment.

CONTINENTAL-DIAMOND FIBRE CO.
NEWARK, DELAWARE



BOTTOM CONSTRUCTION

TOP RIM CROSS SECTION
NO RIVETS EXPOSED TO CATCH MATERIALS BEING HANDLED

DIAMOND SELF OILING CASTER

DIAMOND FIBRE HOLLOW WARE

Without obligation, please send me a copy of the DIAMOND FIBRE HOLLOW WARE catalog.

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PRINTERS! Just one run with this *New* VAT PRINTING GUM and you're "Sold"!

VATRONYX
PRINTING GUM POWDER

Gives these

ADVANTAGES--

1. **Much larger color yields**
2. **Greater bloom and brilliance to colors**
3. **No sticking in engravings**
4. **No breaking of finest lines, because it makes a longer, more elastic gum**
5. **Prevents "snaps" and streaks.**
6. **Ideal for pigmented Rayons.**

VATRONYX Printing Gum Powder is smoothing the worry-lines from many a printer's brow. For the reason that it takes the grief out of Vat Printing and makes it a more dependable, easily managed operation.

VATRONYX overcomes your most prevalent troubles, such as poor color values—clogged engravings—dull colors —"snaps" and streaks—broken lines.

VATRONYX thus saves you time and trouble—and gives finer quality production. Write us for a working sample and instructions. We repeat, "one run and you're 'sold' ".

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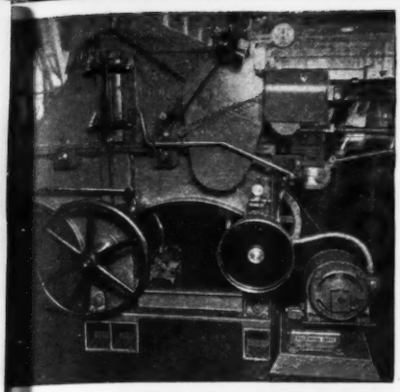


Rockwood Standard Floor Bases are used in many places in cotton mills. This one is driving a silver lapper. *The Rockwood Drive for the first time makes short center drives truly satisfactory.*

The cotton textile industry says

No other drive

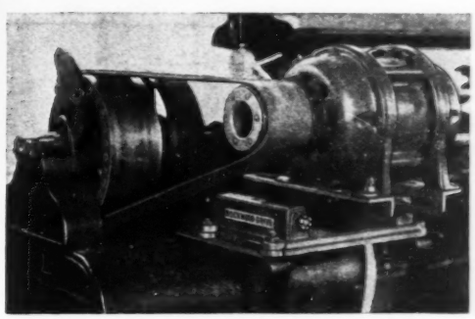
has so many advantages

THE parade of Rockwood Drives into cotton mills continues — in ever increasing numbers.

Their use insures increased output and a better quality of work done because they automatically maintain uniform belt tensions, regardless of changes in belt lengths. Thus the flow of power is smoother and more dependable. They give a freedom from drive trouble and annoyance that plant men are enthusiastic about.

The Rockwood *pivoted motor* Drive is supplied in several different types for textile machinery. The textile industry says that each type gives advantages they can secure in no other manner.

Whether you have one drive or a mill full, it will pay you to have a Rockwood engineer call before you make any changes.



Standard Rockwood Drive Base on bracket to drive Foster winder. A practical, inexpensive and highly successful application. The speed of the winder is maintained religiously and AUTOMATICALLY.

One of the many Rockwood "no maintenance" Ceiling Type Drives in cotton mill use. This is a 75 H.P. motor, 880 R.P.M., in card room—14½-inch Rockwood Motor Pulley to 48-inch Rockwood Split Lineshaft Pulley.

From the standpoint of driven machine performance . . . uniformity of speed . . . savings in power . . . elimination of maintenance troubles . . . quality of work done . . . Rockwood Drives have proven far superior.

Hold 'em boy!

Don't let your grip slip! Hold 'em like a Rockwood Pulley holds the belt. Then he can't get away.

ROCKWOOD PAPER PULLEYS

The wonderful belt gripping surface of the end-grain fibres in Rockwood Paper Pulleys will make a saving on both ends of your drives. They grip a belt as no other pulley possibly can. Bear in mind: "Metal pulleys slip—Rockwood Pulleys grip."

ROCKWOOD PIVOTED MOTOR DRIVES

THE ROCKWOOD MANUFACTURING COMPANY

Division of General Fibre Products, Inc.

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New Designs Reproductions

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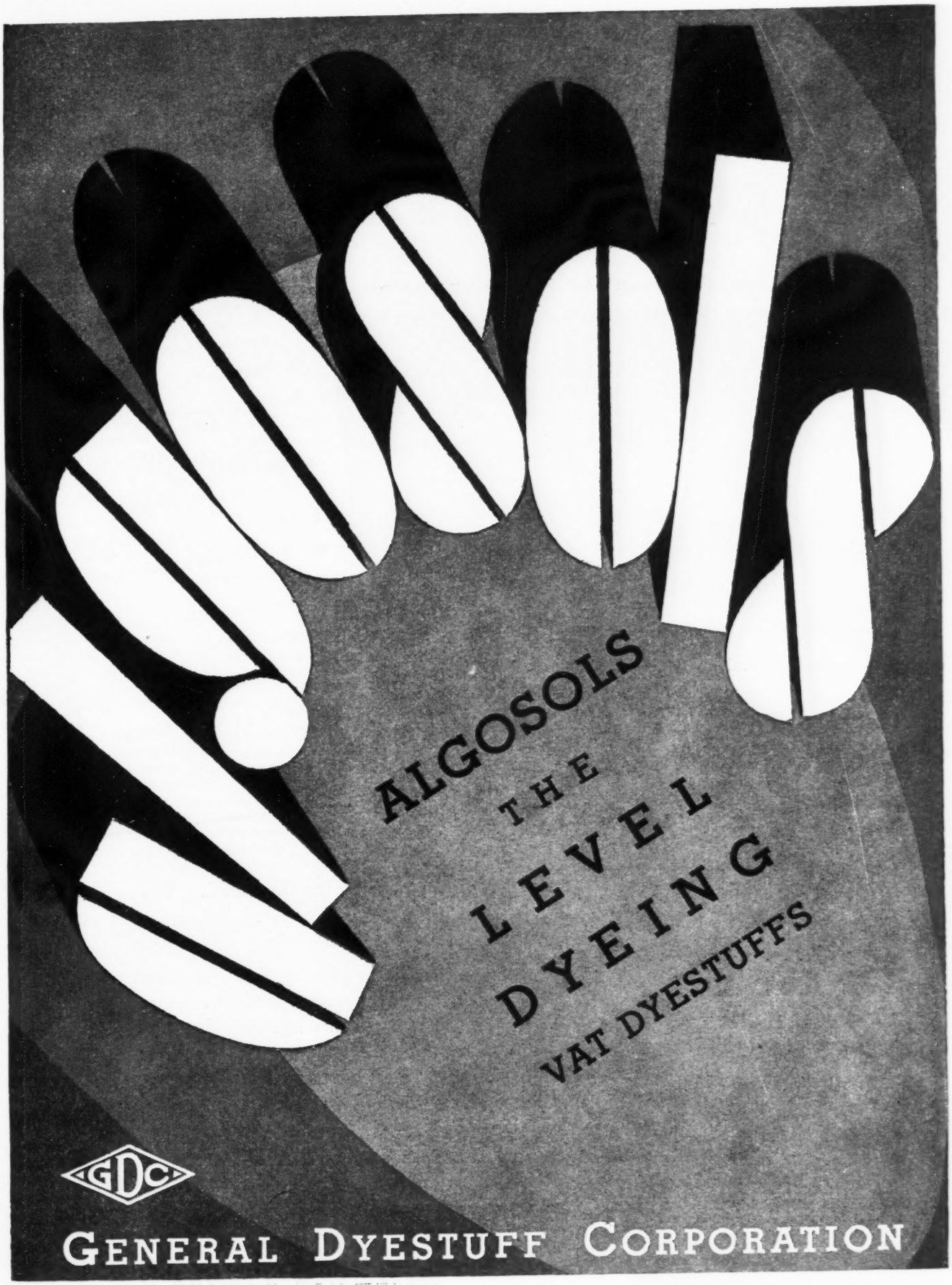
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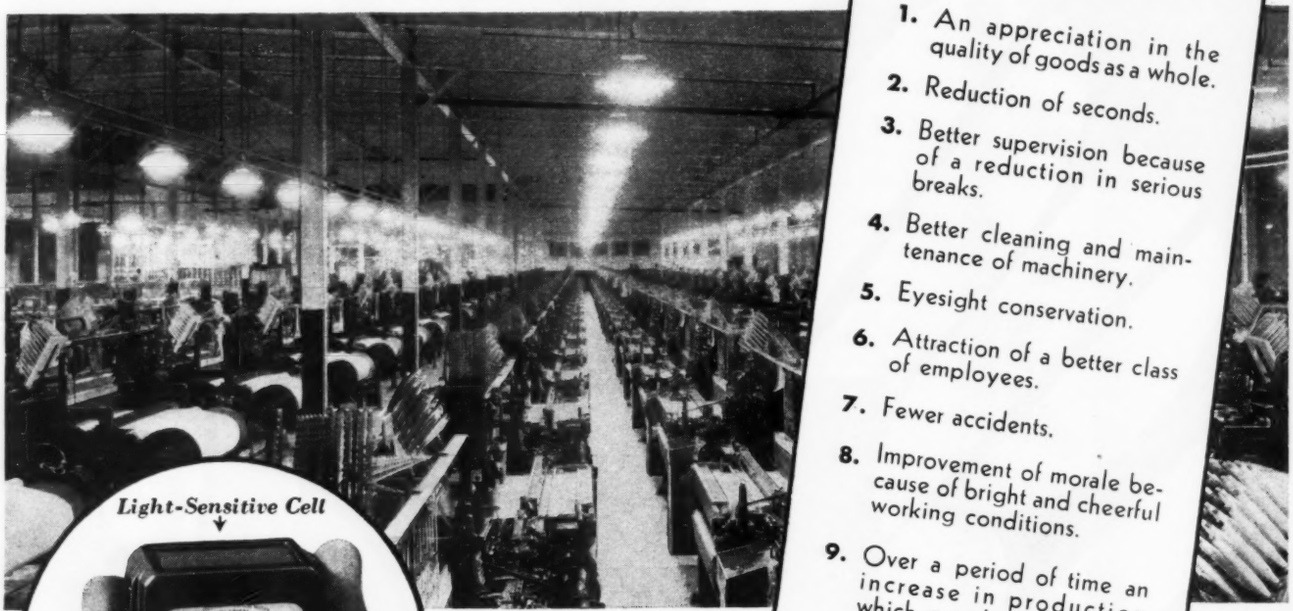
GENERAL DYESTUFF CORPORATION

9 BIG ADVANTAGES OF BETTER LIGHTING IN COTTON TEXTILE MILLS

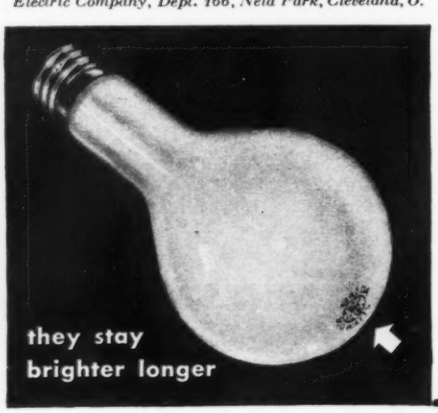
● *This textile mill uses good light to speed production and guard the eyesight of employees.*



1. An appreciation in the quality of goods as a whole.
2. Reduction of seconds.
3. Better supervision because of a reduction in serious breaks.
4. Better cleaning and maintenance of machinery.
5. Eyesight conservation.
6. Attraction of a better class of employees.
7. Fewer accidents.
8. Improvement of morale because of bright and cheerful working conditions.
9. Over a period of time an increase in production which may be sufficient to offset added lighting cost.

USE THE G-E LIGHT METER TO MEASURE MILL LIGHTING

The General Electric Light Meter measures light as simply as a thermometer measures temperature. Costs only $11.50. For detailed information, write to General Electric Company, Dept. 166, Nela Park, Cleveland, O.

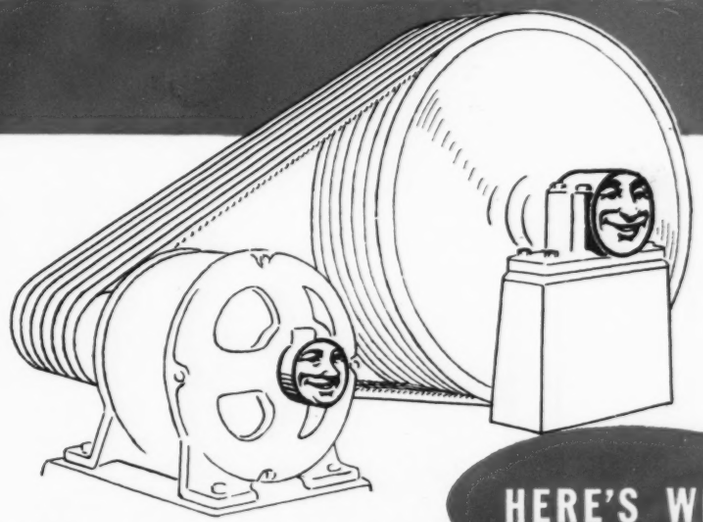


STUDIES recently made by the Illuminating Engineering Society in the cotton textile industry indicate that scientific lighting in mills can provide definite advantages.

Today it is a simple matter to find out whether your mill meets modern safe seeing standards. With a new G-E Light Meter you can measure the lighting. For detailed information on how much light the various departments of your plant should have for the specific seeing tasks carried on, write to the nearest General Electric Incandescent Lamp Sales Division Office.

GENERAL ELECTRIC
MAZDA LAMPS

DAYTON COG-BELTS ARE EASY ON BEARINGS



GREATER GRIPPING POWER PERMITS LESS TENSION

The greater gripping ability of Dayton Cog-Belts in the pulley grooves eliminates all necessity for excessive tension. This relieves the strain on bearings and shafts, making motors and machines stand up longer without adjustments and repairs.

The Dayton Cog-Belt owes its tremendous pulling power to positive wedging action in the pulley groove. It is the only belt with patented, laminated construction which provides the crosswise rigidity needed for maximum wedging effect. With die-cut driving surface completely and continually in contact with the sides of the pulley groove, slippage is eliminated.

More than that, Dayton Cog-Belts are "built-to-bend." They have the greatest strength and stamina. They are quiet and clean. They save space. They last longer.

All of the many advantages of Dayton Cog-Belts are graphically illustrated and described in our big new book, "The A B C's of V-Belts." Write for your copy today.

THE DAYTON RUBBER MFG. CO.
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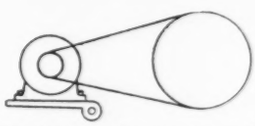
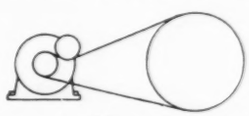
World's Largest Manufacturers of V-Belts

Manufacturers also of Dayton Fan Belts, Dayton Red Tube Radiator Hose, Dayton Thorobred Tires and Dayco Printers' Rollers

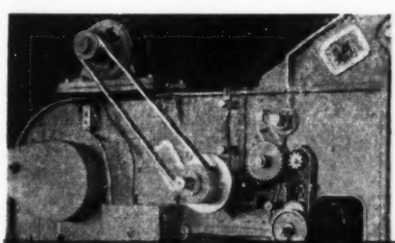
HERE'S WHY

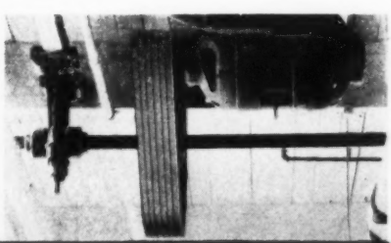


Unnecessary to throw motor weight on Daytons to make them pull.



Nor are troublesome idler pulleys needed with Daytons.





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This is the greatest book on V-Belts ever published. It shows how Dayton Cog-Belts transmit more power, save space, last longer, and reduce costs. This important book will help you solve your drive problems. It's free. Write for a copy.

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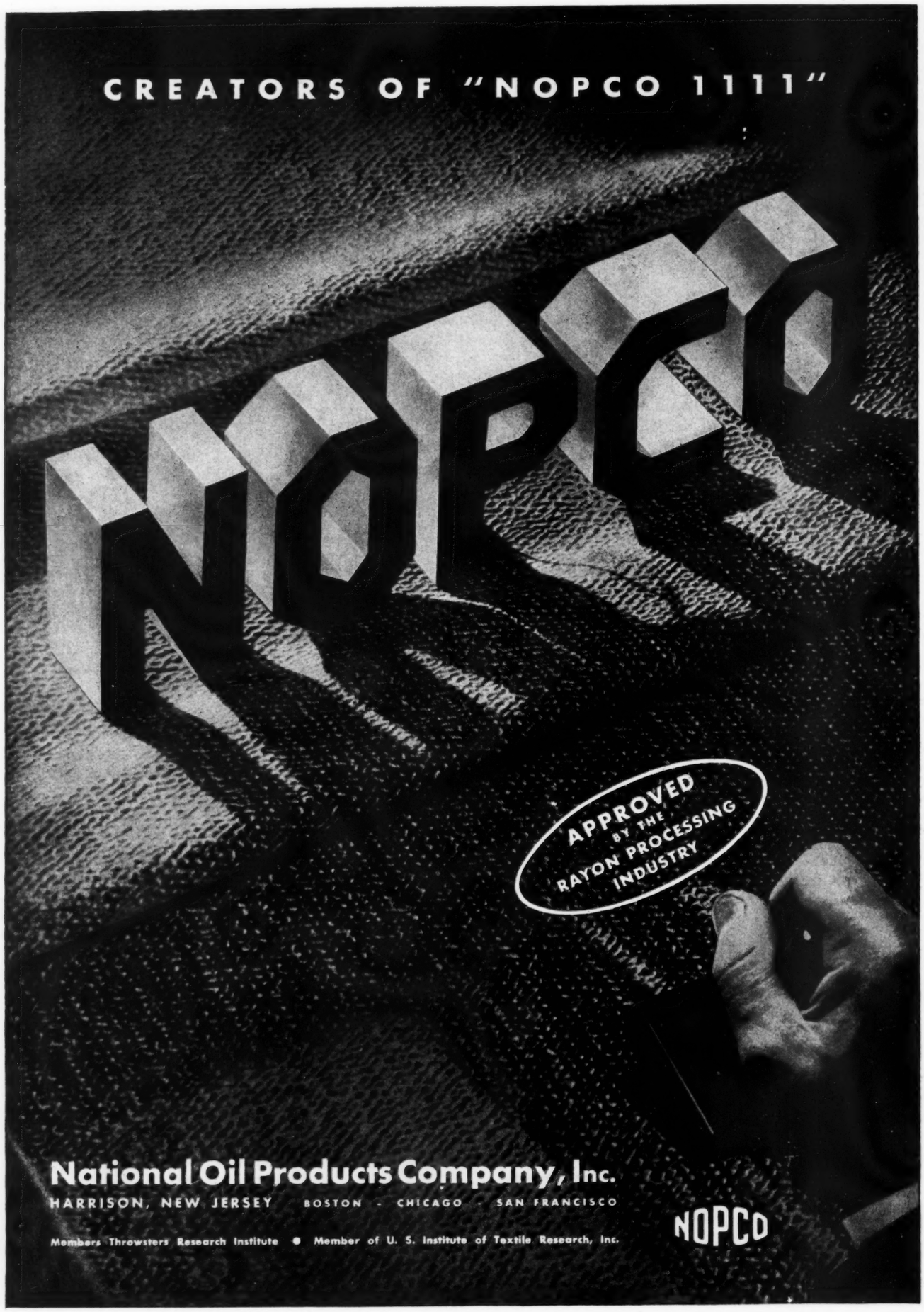
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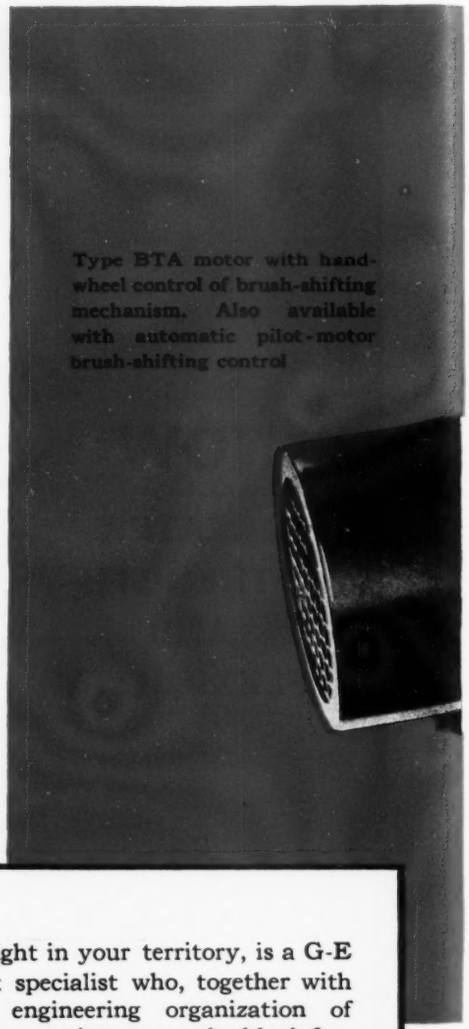
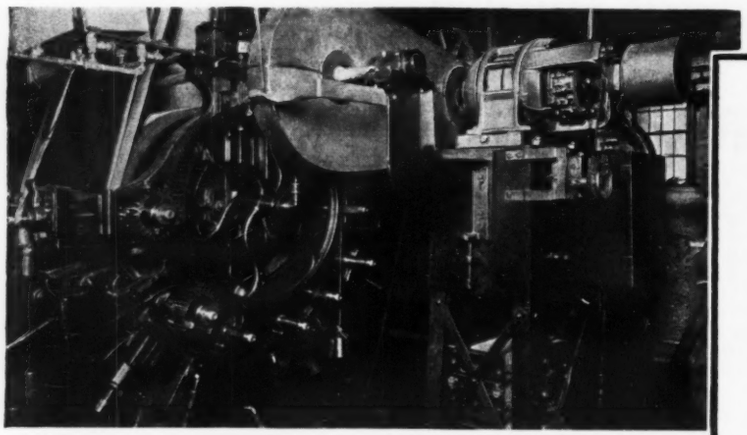


Type BTA motor with handwheel control of brush-shifting mechanism. Also available with automatic pilot-motor brush-shifting control



Textile printing machine driven by a Type BTA motor equipped with handwheel control for accurate speed adjustment

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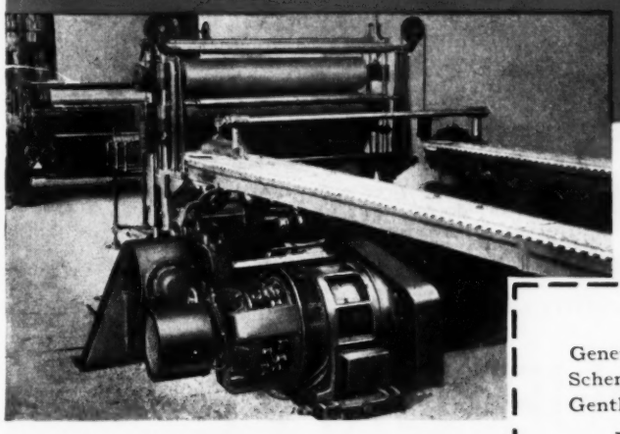

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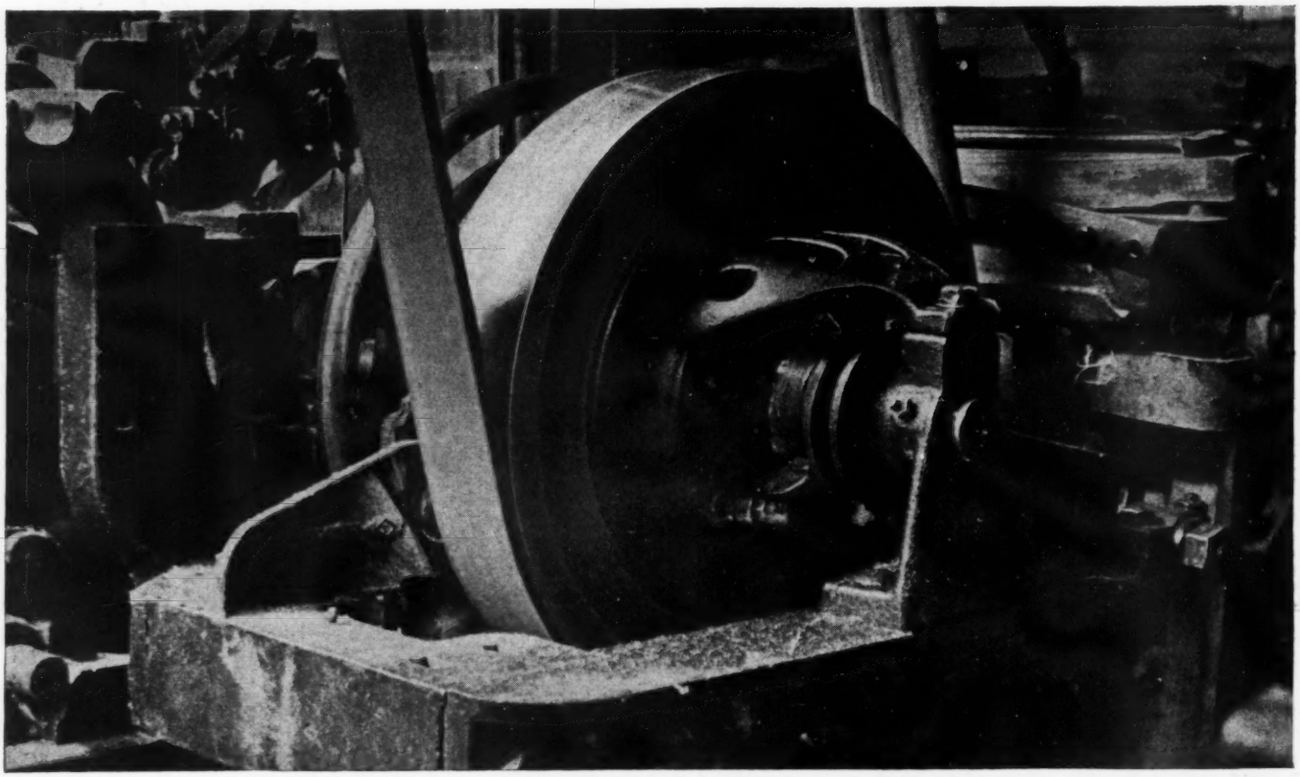

In terms of *mechanics:* it is a new, simple drive mechanism producing uniform rotation of the loom shaft.

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In terms of *proof:* an eight-week comparative test between 70 Energy Drive looms and 70 unit drive looms; all "X" Model type; all making the same cloth; all operated by the same weavers and loom fixers; all running at the same speed;—showed greater total production and less variation in production from loom to loom, with Energy Drive.

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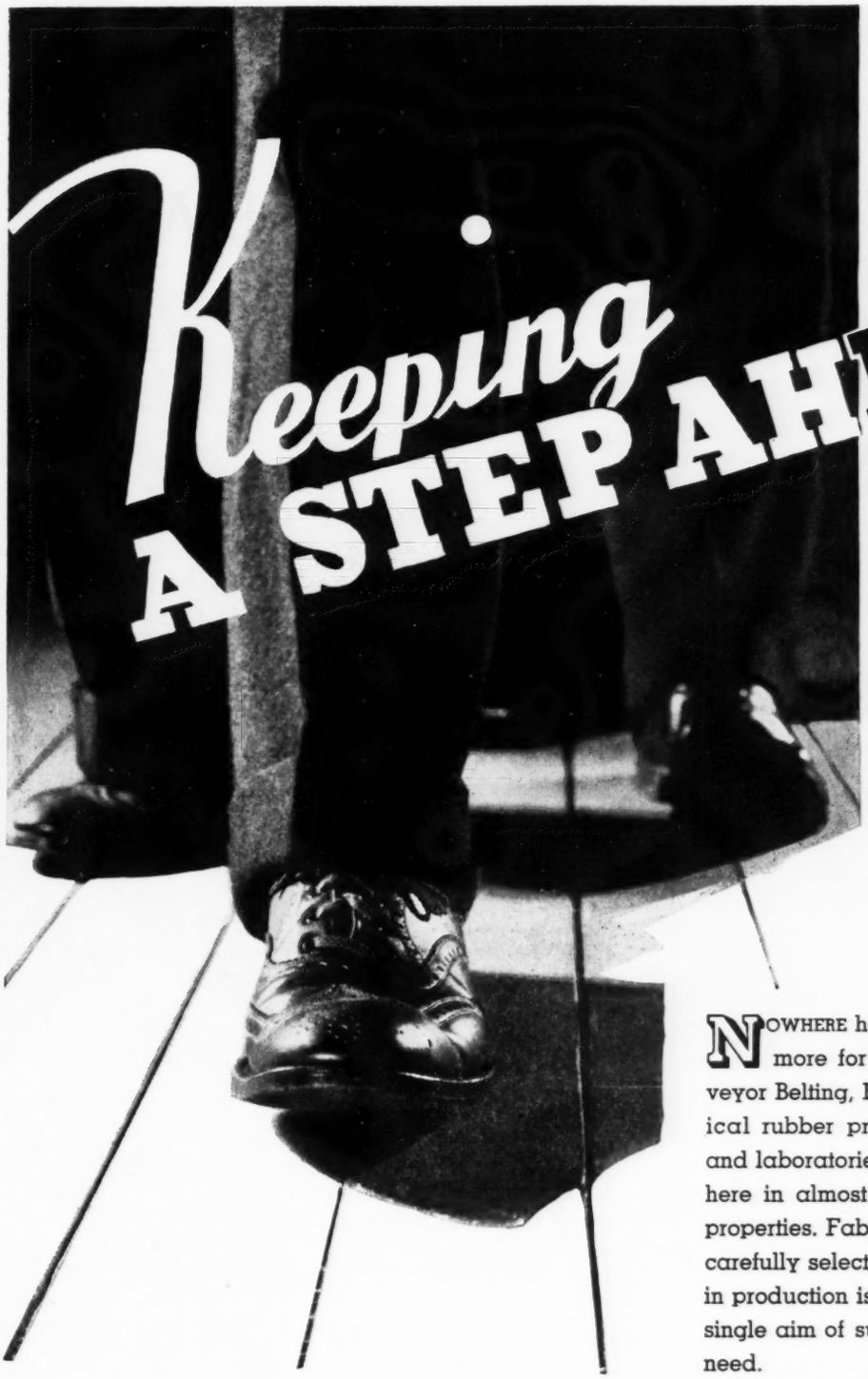

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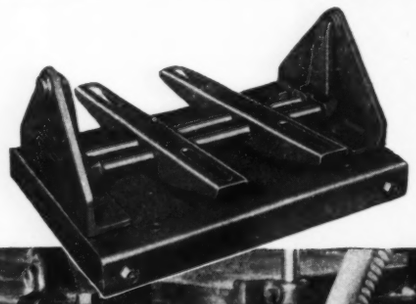

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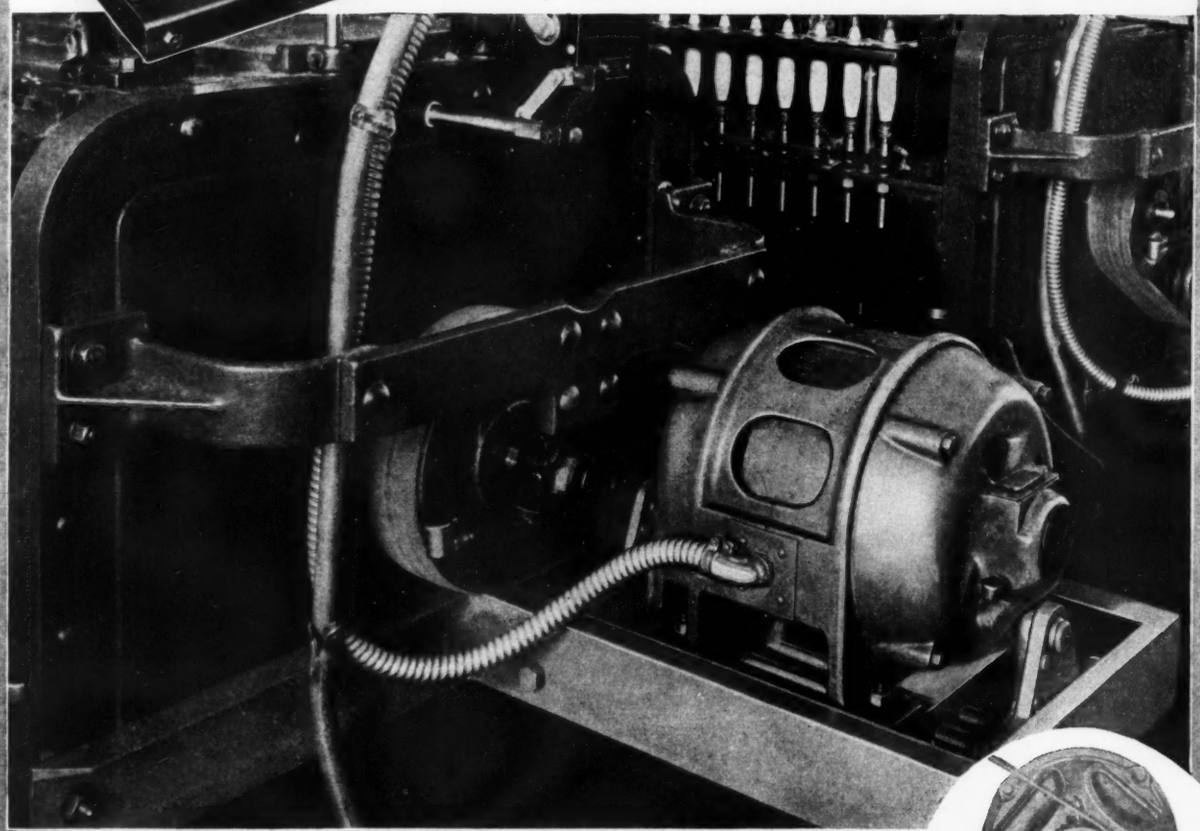

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Vol. 100 No. 11

COTTON

NOVEMBER, 1936

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a quick flush...

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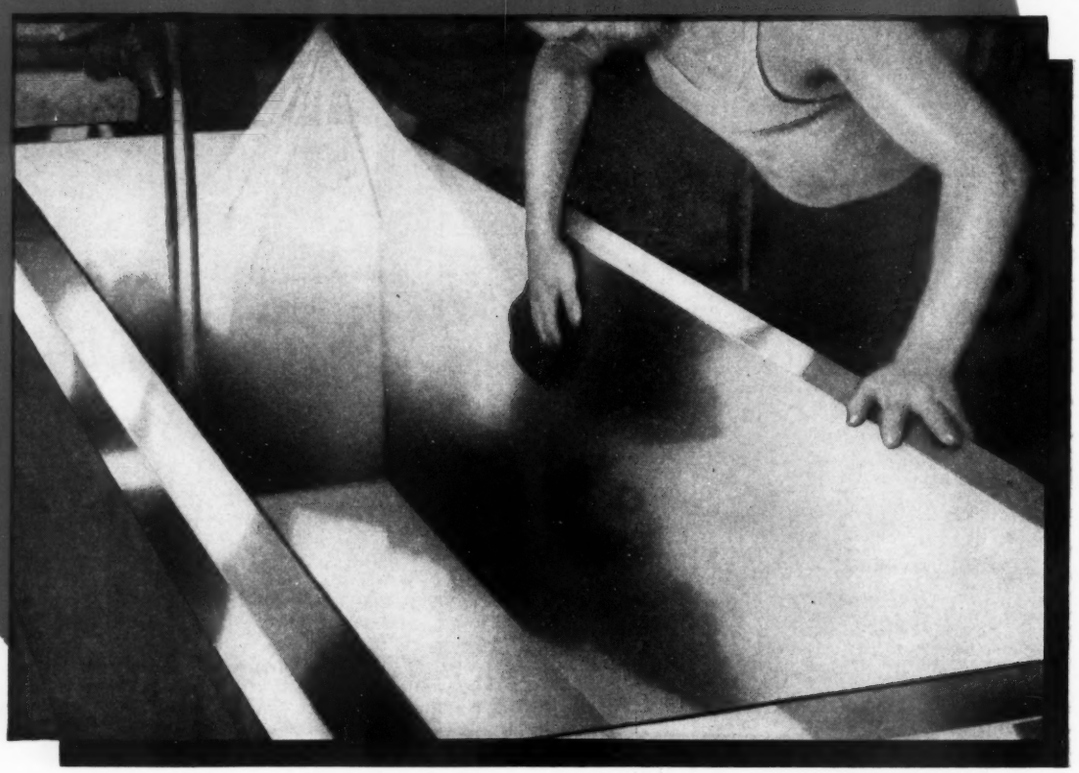

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Vol. 100
No. 11

COTTON

November,
1936

How and Why We Air-Conditioned Two Large Weave Rooms

By George W. Robertson

Vice-President and General Superintendent,
Riverside & Dan River Cotton Mills

As told to Robert W. Philip

TEXTILE plants continue to adopt modern methods. Latest developments in industrial air conditioning, in which after all cotton mills were more or less pioneers, find fertile application and ready reception. This story tells the experience of the South's largest mill unit in equipping two of its large weave rooms with a modern system of air conditioning, and describes, in a non-technical way, the principles involved . . . .

TWO OF the large weave rooms in our Dan River Division are located in the basement of separate structures. This location, with its natural obstacle to adequate ventilation, together with added heat generated through the installation of individual motor drives and a generous increase in the lighting capacity for better illumination, produced a condition of excessive temperature which, particularly during the hot mid-summer months, resulted in much discomfort and consequent reduction in efficiency for our operatives. Resort to the established custom of opening windows not only played havoc with operating conditions by creating spots of excessive and inadequate humidity, but totally failed in its purpose of relieving the oppressively hot temperatures.

As a result of our interest in securing an accurate and economically practical means of creating more comfortable, healthful conditions for our employees, we have installed in these departments a modern system of industrial air conditioning equipment which has, in operation, exceeded our expectations in producing constantly the desired conditions of work for these employees. In addition, we are naturally pleased to find as a result an improvement in both the operative and mechanical efficiency in these rooms, and we are now proceeding to equip two of our top floor spinning rooms with similar equipment.

We have found that where previously it was not uncommon to find temperatures well over 100 degrees in each of these weave rooms, that with this new air conditioning system, based on the temperature and humidity requirements of the room, we have no difficulty in holding the temperature down to the set standard of 85 degrees, with an accurate, uniform control of the relative humidity at 85 per cent throughout the department. The humanitarian effects and practical service of efficiency to be gained from the steady achievement of these conditions in contrast to the previous conditions will be apparent to mill executives who will also be interested in a brief description of the means by which they were obtained.

MR. ROBERTSON, who gives here an interesting discussion of an important subject, is one of the outstanding figures in southern textile manufacturing. As vice-president and general superintendent of the Riverside & Dan River Cotton Mills, he actively heads one of the largest mill organizations in the country, operating nearly 500,000 spindles and 14,000 looms. He will soon complete 53 years' continuous service with this organization.

Our first installation of this air conditioning was in the basement of our No. 4 weaving mill. This plant, a two-story structure 446 x 312 feet, contains a total of nearly 5,000 looms, producing the colored goods woven at the Dan River division. Of these, about 2,000 are located on the first or basement floor which was not originally designed entirely for manufacturing purposes, and its adaptation for weaving involved the problems already mentioned. This installation was completed in June, 1935.

As a result of our satisfactory experience in the No. 4 mill, we installed last summer similar equipment on the first or basement floor of the building housing the No. 1 and No. 2 gray goods weaving. This building is 450 x 360 feet, and the basement floor contains 1,800 of our wide sheeting and other gray goods looms, and when a portion of this floor, originally designed and used for storage, was later utilized for weaving, similar undesirable conditions were encountered.

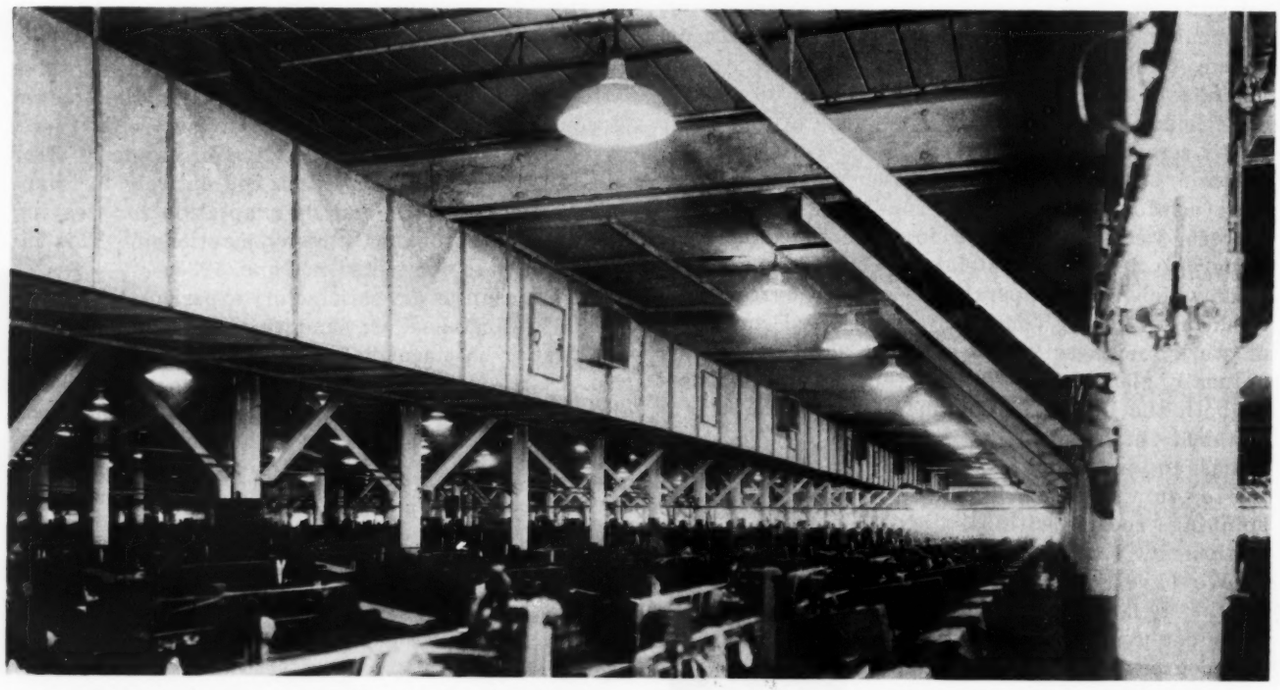
Our two present installations are identical in principle and operation, the only difference being those necessary to make the equipment conform to the different construction details of the two buildings; each installation being a tailor-made job to conform to the requirements of the physical lay-out of the two mills.

Essentially, the system is based on the principle of cooling by definitely measured air change (without opening windows, doors, or transoms) and direct humidification. It consists of a series of ducts located on the ceiling of the room, with outlet vents along the side-walls, each duct connected to a unit which is equipped with two sets of dampers—one for admitting outside air and the other for re-circulating inside air. These dampers, as shown in the photographs of the apparatus, are located in an insulated mixing chamber which contains a rotary pressure fan for circulating and distributing the air. From this mixing chamber the air passes through a heating unit located, in our case, in the duct line, though if adequate heating equipment such as coils or unit heaters were already installed in the room, the control of the air change system could be automatically connected with it. There are also installed in the windows a series of self-weighted exhaust dampers which permit used, heated air to be expelled, and at the same time set up a slight air pressure, or plenum, within the room which prevents back drafts and leakage.

The dampers which admit outside air, and those which control the re-circulation of inside air, work in unison from a central damper lever motor. When the outside-air dampers are totally open, the inside-air dampers are totally closed, and vice versa; and in between these two conditions are intermediate positions but at all times the openings in both sets are equivalent to one full opening in either; in other words, the same amount of air—whether entirely all from the outside or entirely all inside air being re-circulated, or a combination of both—is being circulated at all times.

The heart of the entire system is a most ingenious mechanism which automatically co-ordinates the amount of air admitted from the outside and the amount of room air to be re-circulated, as well as the turning off and on of both the heating and humidifying equipment as inside conditions require. A brief description of this procedure, together with the accompanying sketch showing how such an air conditioning system is installed in a mill, will help make the matter clear.

First, it should be remembered that there are three distinct systems functioning together—air handling, humidifying, and heating. All three are independent of each other and yet all are so interconnected that the function of each is perfectly conserved. The capacity of the airchanging equipment is designed for outside weather conditions of hot, humid air, because it is under those conditions that the maximum air handling capacity is required to evaporate a given amount of water from the humidifiers. Again, the evaporative capacity of the humidifying system itself was designed for conditions of hot, dry air, because a unit of hot, dry air—in cooling itself and maintaining the desired relative humidity—will absorb more moisture than a unit of hot, humid air. While we found it necessary to somewhat increase our existing humidifier capacity in both of our installations, in order to provide necessary additional evaporation to take care of this increased air change, still we utilized completely our



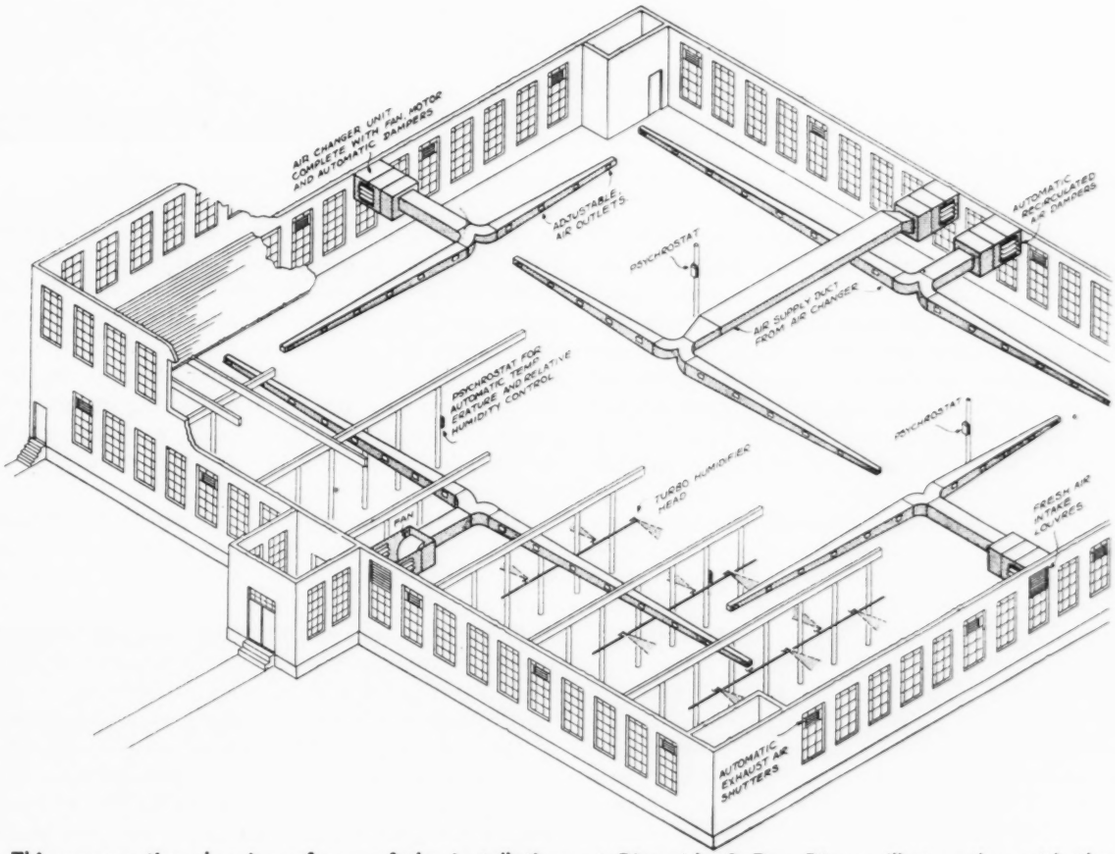
Lengthwise view of Airchanger duct in No. 4 basement weave room at Riverside & Dan River Mills, showing outlets and access doors. Note the temperature control mechanism on the column in the right foreground, and atomizer humidifying equipment which supplies humidity to the room . . . . . .

Showing, in foreground, a mixing chamber and heater coil section with access doors; the circulating fan is enclosed in the mixing chamber. Another mixing chamber may be seen in background . . . . . .

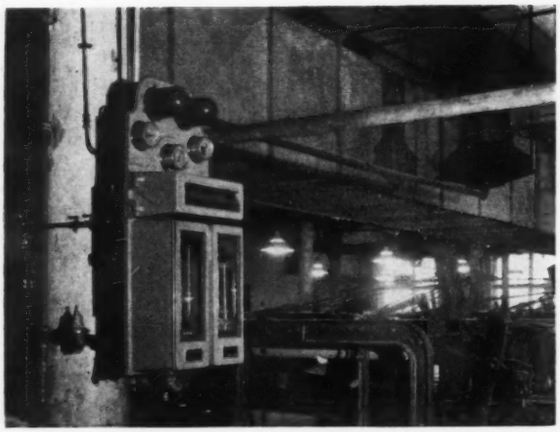
existing humidifying equipment in conjunction with the new system.

It is interesting to follow the operation of this system on a hot dry day. The humidifier equipment itself starts off and continues in operation until the relative humidity called for by the regulating machine, or psychrostat, is reached, and at this point the psychrostat begins to open the dampers, admitting outside fresh air and at the same time the re-circulating inside dampers close. An increase in relative humidity of about one or two per cent above the point at which the psychrostat is set results in the re-circulating dampers closing entirely and all the air being drawn from the outside. The humidifiers are then operating at their full capacity and the fresh air from the outside is absorbing the moisture from these humidifiers and thereby absorbing the room heat at the maximum rate. If the humidity begins to fall off, the outside fresh air dampers begin to close and the re-circulating dampers open slightly until the humidity equilibrium is restored. In this way the two sets of dampers have a floating effect that constantly maintains the humidity uniform and at the same time creates as much cooling effect as the evaporation from the humidifiers can produce.

On a hot, humid day, when the inside humidity


AIR CHANGER UNIT COMPLETE WITH FAN, MOTOR AND AUTOMATIC DAMPERS
ADJUSTABLE AIR OUTLETS
PSYCHROSTAT
AUTOMATIC RECIRCULATED AIR DAMPERS
AIR SUPPLY DUCT FROM AIR CHANGER
PSYCHROSTAT FOR AUTOMATIC TEMP. CONTROL AND RELATIVE HUMIDITY CONTROL
PSYCHROSTAT
TURBO HUMIDIFIER HEAD
FAN
FRESH AIR INTAKE LOUVRES
AUTOMATIC EXHAUST AIR SHUTTERS

This perspective drawing of one of the installations at Riverside & Dan River will, together with the description in the article, show clearly the general operation of the air-conditioning equipment. Note the intake louvres and exhaust shutters in the windows, the mixing chambers, distributing ducts, psychrostat, thermostat, humidifier heads, etc. . . . . .



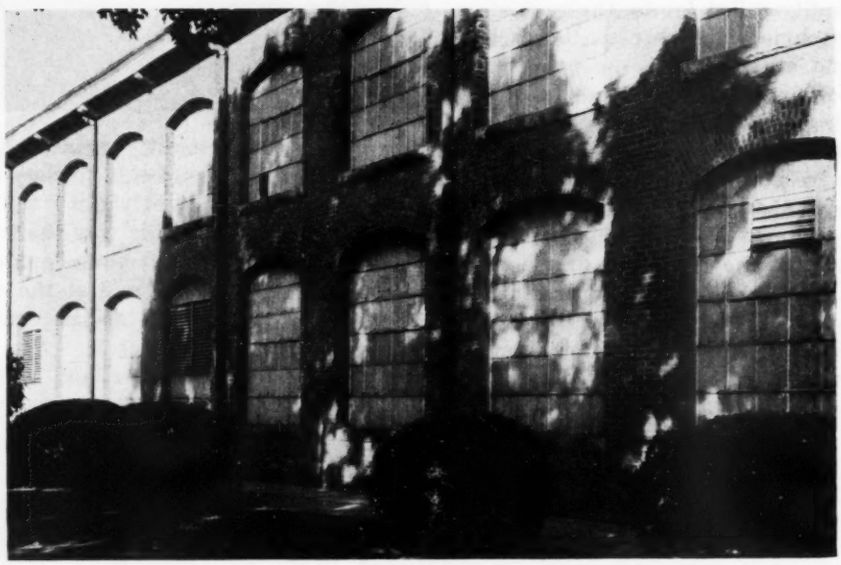
Above, the "heart" of the air-conditioning system, the psychrostat, which controls the humidity, temperature, and air change. The temperature thermostat is located on the opposite side of the column. One of the high-duty humidifier heads used in this room, and a section of the air-distributing duct, are also shown . . .

admitted to the heater sections, thereby raising the temperature of the room to the desired running point.

At all times, when the outside air is below the dew point of the room, the dampers are set so that a portion of inside air is re-circulated, thereby eliminating all danger of condensation on the ducts. In a similar way, a small amount of outside air is always being admitted into the mixing chamber in order to maintain a slight plenum, or air pressure, so that the leakage will all be outward instead of here-and-there inward leakage.

The air conditioning system as installed in our plants is known as the Automatic Airchanger, and was designed, built and installed by Parks-Cramer Company, Fitchburg, Mass., and Charlotte, N. C.

At right, in the exterior view of No. 4 weave room, are shown the construction of intake louvres (seen in two windows at left of photograph) as well as an exhaust shutter (in window at extreme right) . . .



An outside view of the lower end of No. 4 weave room

is attained and the re-circulating dampers are closed and the fresh air dampers wide open, if the inside humidity builds up still higher, say, to not over 3 per cent above the psychrostat setting, then the humidifiers shut off; but the full capacity of the air changing equipment continues to draw in outside air to carry out the heat and excess moisture on the inside. This action continues until the humidity inside drops to the desired setting when the humidifiers turn on again.

It is thus seen that under this regulation arrangement, the humidity control on the psychrostat governs not only the room humidity, but the temperature and rate of air change as well; three simultaneous functions in one instrument—a novel and effective combination.

A thermostat in the room controls the temperature and acts as a safety valve, so that in cool weather the outside fresh air dampers are not opened until the room temperature reaches the setting of the thermostat. From that point on, the above-mentioned operation of the system continues. This thermostat also controls the admitting of steam to the heater sections, so that when the temperature of the room drops below the desired point, not only are the outside fresh air dampers closed, but steam is also admitted to the heater sections, thereby raising the temperature of the room to the desired running point.

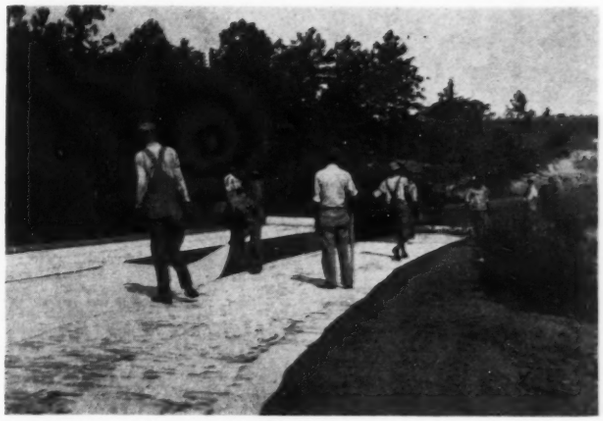
This system gives us uniform humidity throughout the seasons, as well as uniform distribution of humidity and temperature throughout the entire room, and we realize the practical benefits which come from the continuous attainment of these conditions. Most important to us, however, is the fact that it gives us a maximum of cooling in hot weather, creating healthful, comfortable working conditions as described, replacing the previous conditions—hitherto beyond our control.

It would be possible, during most of our summer, for the equipment to produce a lower temperature, but we have established 85 per cent relative humidity and 85 degrees F., as the most desirable standards in these departments, and find our temperature ranges never above and usually between that figure and the designed minimum of 80 degrees.

Perhaps the best testimony to the practical value of these installations is that, whereas formerly, as is true in all mills with such conditions similar to those we used to have, the operatives much preferred to work elsewhere in the mills, our superintendents now find that their employees "had just as soon work in these basement weave rooms as anywhere else", and in some instances have had requests from employees to be transferred to them.

A New Use for the South's Product— COTTON ROADS

By George H. Watson

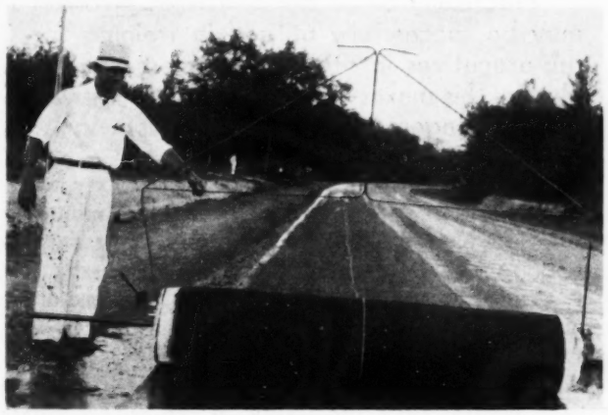


A layer of cotton fabric goes into construction of a road in Alabama as part of a program intended to provide a new use for the fleecy staple . . .

DOWN in Alabama traffic is moving over the first "cotton highway" in a widely publicized experiment which if it turns out successfully will mean a brand new market for a cotton-textile product.

This is part of an extended program being fostered by the U. S. Department of Agriculture in which some 6,167,000 square yards of cotton fabric are being provided for the building of over 500 miles of roads in some 24 states.

The cotton fabric used resembles burlap bagging and it comes in rolls 82 inches wide, three rolls being



A close-up on one of the rolls of cotton fabric

required to cover the average "farm-to-market" highway. The three widths laid side by side cover 20 feet of the 22 feet-wide highway, after lapping is taken out.

Advocates of "cotton paving" contend that it not only re-inforces the bituminous surfacing, but also prevents it from cracking and improves its resistance to water. A year or more of use will be required to determine this. Six bales of cotton are required for a mile of the usual width road and its use increases construction cost about $1,000 per mile, so the fabric will have to prove its worth before being generally used.

As already indicated, the cotton fabric provides only one layer between the usual materials used in highway construction. First comes the sand-clay base, then a hard-surfacing asphalt coat, then the cotton. On top of the fabric comes another coat of asphalt, then heavy slag, more asphalt and fine slag, all of which is finally rolled into the one mass.

As the first 12-mile stretch was being built in Alabama between Tuscaloosa and Reform, cotton pickers along the way paused to watch the operation. The dusky pickers understood everything but the layer of "tow sacks". They didn't know it was the same stuff they were picking, only in different form. Somewhere in between there was a gin and a mill. No one took trouble to tell the cotton pickers they were seeing history made.

Alabama proposes to build 119 miles of cotton fabric highways using 1,260,094 square yards of the material, or more than any other state. North Carolina comes next with plans for 105 miles. Other states will use varying amounts.

In addition a number of states have asked the Department of Agriculture for supplies of cotton mats for use in curing concrete roads. The mats will be used instead of salt, hay or straw in the North and burlap in other sections.

After the cotton fabric is placed, a coating of tar is added and then the top coat of chert

How Loom Fixers are Trained at the Bibb Plant in Columbus

Article 1—Selection and Preliminary Training

By C. E. Dorn, Overseer Weaving
Bibb Manufacturing Co., Columbus, Ga.

OUT OF the experience of one of the country's leading mill organizations, this article describes its methods of an important phase of personnel training—that of developing new loom fixers and of better training those already on the job.

The first section tells how new material for these key jobs is selected, and the preparatory training given; and the second part deals with the advanced training provided for those "on the job".

Practically all of the principles involved may be successfully utilized in training for sub-executives in other departments of the plant. This makes the discussion of high value to managers of all types of mills.

THE PROBLEM of training loom fixers covers such a wide field that perhaps it is advisable to divide the outline of such a program into two parts. The first part will cover the preliminary training; that is, all the preparatory steps necessary before the individual is to be placed on a fixer's job. The second part of the training program includes advanced steps which will enable the fixer to understand the finer points of loom fixing and to perform his job more efficiently.

The following outline embraces the first phase of the training.

Selecting the Prospective Fixers

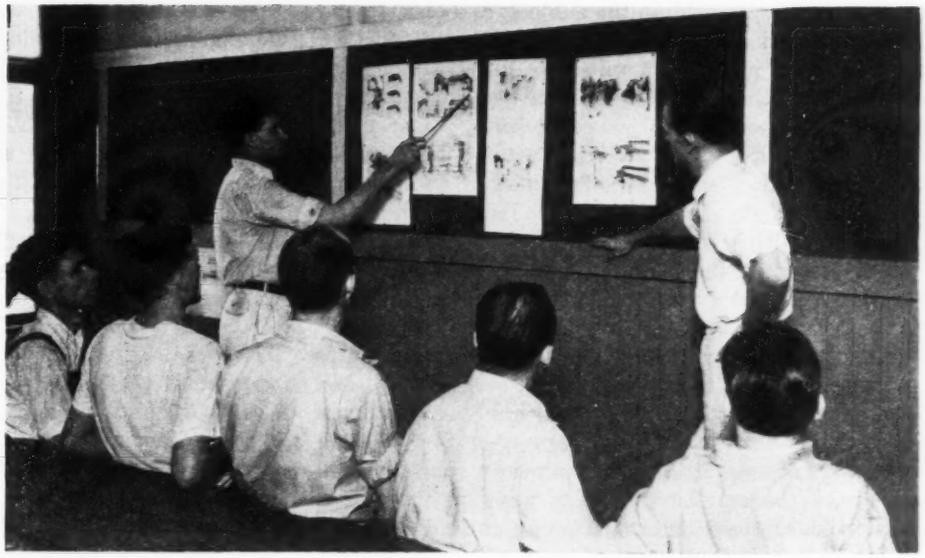
An item of utmost importance is the proper selection of those to be trained. For every job or position there is a best type of worker to fill it. In order to fill a need properly, both the need and the means of supplying it must be thoroughly understood. The individual must be trained, or otherwise qualified, to measure up to the performance and responsibility requirements. The ability to "size up" people is certainly an asset to be valued, in making selections, because any form of training is expensive, and the nearer one can come to selecting the workers measuring up to the standards set, the better will be the results.

One of the first requirements of a loom fixer learner is that he possess mechanical talent. If a man does not possess a mechanical turn, he will never develop into a first-class loom fixer. Reliability, honesty, loyalty, ability, interest, initiative and attitude are other requirements to be considered in the selection of a learner.

We always endeavor to interest good weavers who have a natural turn for fixing in the opportunities available to a loom fixer.

Wherever possible, we place the prospective fixers

Instructor J. H. Pitts using one of the two looms in the vocational school building for demonstrating the adjustment of filling knives on the shuttle feeler to a group of loom fixing students . .



A group of loom fixing students studying catalog sheets of loom parts, and learning the correct names of the parts. "Every loom part has a correct name, but we too often hear a part described as a 'hicky' or 'gadget'." . . . . .

on jobs where they can get the most practical experience along with their preliminary training. Installation and loom-changing jobs are helpful in giving them an opportunity to gain experience which will be invaluable in the years to come.

Classes Meet in Vocational Building

The meeting place for the classes which we conduct is in the Bibb Vocational School building, furnished by the Bibb Manufacturing Company and publicly supervised and controlled by the Muscogee County Board of Education and the Vocational Education Division of the State Board of Education under the Smith-Hughes Law. Blackboards, tables, chairs, loom catalogs, trade publications and two looms are available for instruction purposes. Part of the time of each class is spent for lectures, instruction and demonstration. The practical fixing instruction is done mostly in the mill on the model of loom in which the members of the class are most interested. However, the two looms in the school building are repeatedly torn down and erected by class members.

We have two loom fixing classes that meet twice weekly for two-hour sessions each. This, however, does not mean that our training is confined to only two days per week; on the contrary, student passes are given to the workers so that they may come back into the mill at any time to learn more about their work. This offers an exceptional opportunity of value to both the workers and the management.

Our classes are taught by shift foremen who are men with practical training for this kind of work. The overseer and shift foremen always encourage the members to do their part, and we assure them that if they will do their best, we will assist them to qualify for jobs with greater responsibilities and proportionate remuneration. This is a very important part of the work, as proper incentives are necessary if interest among the members of the classes is maintained.

We follow the Standard Cotton Textile Vocational School courses of study adopted by all the State Boards of Education; and have subdivided the loom fixing units of the Standard Courses, Units 33, 34, 35, 36, 37, 38, and 39 into carefully arranged lessons. Prior to the entrance of most of these pupils into the loom fixing classes they will have finished the mathematical and technical units of the standard courses, thus being able to understand and calculate any ordinary mechanical, cloth, and cloth analysis problem that may arise in the loom fixing units of training. Many of our weave room employees take the complete weaving courses and earn Standard Plain Weaving Diplomas and Standard Dobby Weaving Diplomas.

"Practical Loom Fixing", by Thomas Nelson, is the textbook used for theoretical and practical class instruction. Catalog sheets are pasted on blackboards and are used to good advantage to teach the names of loom parts and definitions. Every loom part has a correct name, but we too often hear a part described as a "hicky" or "gadget". The principal movements of loom parts and their relation to each other are studied.

After the class instruction period is finished, an experienced loom fixer is generally assigned to a group of four or five learners to do the actual work in the mill. The experienced fixers learn more about their job and at the same time assist the younger learners. Before class time, the instructor selects loom numbers that are to be worked on. There might be a loom side or a crank shaft to be installed, and such work is very instructive for the learners. Chronic looms that have been giving an excessive amount of trouble are given attention. Other looms are worked on for reed cutting or other serious troubles.

Importance of Proper Tools

Class instructors always stress the value of getting the proper tools to perform the work in a first-class manner and having the correct tool for every job. The learners are required to have straight edges, reed squares, reed pliers, drills, and other necessary quipment.

The class members are assigned tasks to study and turn in as written work. The various causes of bad work are studied with the view to correcting such troubles. For instance, a student may be assigned a problem on the causes of broken filling. After he has listed as many causes as are known to him, then an

open discussion is held on the subject, and other members of the class are asked to suggest still further causes. Then a list is compiled of the various causes of this and other defects, such as hanging quills on change; stripped quills; jerked-in filling; over-shots, slack selvage, loops; wavy cloth; button-hole selvages; bouncing shuttle; slamming-off; thick or thin places; kinky filling; oily cloth, etc. These lists are then prepared in multiple copies and a copy is furnished to each member of the class so that he may study the troubles and find a way to eliminate as many of them as possible.

Directions for applying and setting various parts of looms, such as the filling feeler, stop motion, and thread cutter, furnished by the loom manufacturers in convenient pamphlet form, are used for training purposes. Along with these, each member is furnished a copy of the standard settings used on the looms. This includes the standard settings and adjustments on the rocker shaft, lay, crank-arms, pick motion, protector rod and frogs, boxing shuttle, setting battery, brake and clutch, warp stop motion, thread cutter, and feeler. Standard settings are furnished on various styles to produce the proper face on the cloth. This list also includes general information and instructions that are helpful to the loom fixer in training.

All the foregoing training, instructions and preparations lead up to the following test or examination for loom fixers which is known as "Tests in Practical Loom Fixing":

Test No. 1—
When the warp is out: A list of the items to be checked and parts on the loom to be tightened while the warp is out is to be turned in by the student to the instructor. The student is then required to take a loom which he is studying, check the items and make the adjustments which he has listed on his report to the instructor.

Test No. 2—
Putting in new shuttle: A list is turned in showing all the adjustments to be made and items to be checked on the loom before starting up a new shuttle. The student is then required to put a new shuttle into the loom and see that it is boxed properly.

Test No. 3—
Starting up a new warp: The student is required to tie in a new warp and set the harness.

Test No. 4—
Filling feeler, filling fork, and let-back.

Test No. 5—
Shuttle feeler, battery, transferrer, and lay.

Test No. 6—
Warp stop motion.

Test No. 7—
Pick motion.

Test No. 8—
Brake, clutch, cork friction, and shipper handle.

Test No. 9—
Protector rod fingers, daggers, dagger rod spring.

Test No. 10—
Thread cutters.

Test No. 11—
Rocker shafts, crank arms, lay swords, lay guides.

Test No. 12—
Let-off, beam locks, whip rollers, vibrator cams.

Test No. 13—
Take-up motion, sand roller, cloth wind-up motion.

Test No. 14—
Temples, temple knives, temple slides.

Test No. 15—
Binder springs, check straps, parallels, parallel shoes, heel springs, and heel straps.

The purpose of these tests is to enable us to know that every prospective loom fixer understands the settings; and when check-ups and inspections are made, we can ascertain exactly what has been accomplished by the students during the course of study. Such tests when given to these workers assist us in determining whether the fixers and apprentices know all about the settings or whether they are deliberately doing a poor job, as there is no excuse for a slip-shod, haphazard job if the proper procedure is known by those whose duty it is to perform this work.

The tests are given generally on Saturday morning, as it is easier for the instructors to talk and to explain the points while the machinery in the mill is not running.

The particular part involved in the setting on which a test is to be given is loosened or dismantled, and the pupil is required to set it properly and to the satisfaction of his instructor. If he fails the first time, he will be given the same test over and over until the setting is mastered. One setting at a time is handled; and, as the proper adjustment of each setting is accomplished, the student progresses to the next test until the entire list of preparatory steps in his training is covered. He is then ready for advanced training in loom fixing, the steps of which will be set forth in the remainder of this article.

(The second and concluding installment of this article, to appear next month, will continue this discussion by covering the advanced training given to loom fixers under the Bibb plan.—The Editor.)

The columns of the "How Other Men Manage" department of Cotton during recent months have carried a number of discussions of this subject, which may be read with value in connection with Mr. Dorn's article. Discussions on a question as to how to train loom fixers and weavers, which appeared on page 83 of the January, 1936, issue, have been published subsequently on page 101, March issue; page 119, April issue; page 118, May issue, page 77, August issue; and page 101 of the September issue.

On Reading Technical Journals

Many mill owners, managers, directors, and others holding executive positions do not devote sufficient time to the study of the technical journals of their own industry. We suggest there is great need that all the above named should devote a certain minimum amount of time per month to the study of textile journals. Even presuming that many of them are fully equipped as regards technical knowledge for the positions they hold—which presumption is quite safe—it is impossible to escape the conclusion that they cannot be fully informed and in touch with the trend of modern developments without the help of trade journals. Further, it is very certain that those who do not read these periodicals will miss every month something they ought to know. The common plea of not having time to spare for such reading is not the true explanation for this apparent lack of interest, for the writer knows numberless cases where busy men find time to scan the technical publications of their own trade and confessedly profit thereby. It it not long since the managing director of one of the best-known textile machinery firms in the north of England told the writer that he always allocated time every month for the perusal of the trade journals, and that he never omitted this task from his list of duties. He has carried out the practice for many years, and has been repaid a thousandfold for the suggestions he has gleaned in this manner. In all seriousness, therefore, we suggest that this example is one to be followed by everyone who holds or aspires to hold a responsible position in the industry. —Textile Recorder.

The Institute Meeting and Co-ordination Conference Held in New York City

MARKED BY inspiring reports of constructive achievement in the past, by encouraging plans of proposed further activity, together with a current psychology of optimism and good cheer, the tenth annual meeting of The Cotton-Textile Institute, Inc., held at the Biltmore Hotel, New York City, on Wednesday, October 28, was a definite milestone in the history of this dominant branch of the textile industry.

Ten years ago, when the Institute was organized to fill a then apparent need for a cohesive, co-operative agency for the whole of the cotton-textile industry, there were major events yet to come, but then unforeseen, that presented a challenge to the Institute and its leaders and provided opportunities for genuine leadership which it met effectively and courageously. Notable among these was the advent of NRA and its Code No. 1. This responsibility temporarily submerged the regular activities of the organization, at least from public view, but while obscured for the moment, the established functions of the agency proceeded with sound and constructive accomplishments, and the Tenth Birthday Celebration, with NRA problems currently out of the picture, provided an opportunity to bring more sharply into focus the effective work which the organization has done, is doing and proposes—with the unified aid of its industry—to achieve in the future.

The annual meeting of the Institute proper was preceded, on Tuesday, October 27, by the initial co-ordination conference of the various regional, state and group associations allied with the textile industry. This meeting was called by and held under the auspices of the Institute, with its president in the chair.

The first session of the Institute convention, an open meeting, was held on Wednesday morning, with G. H. Dorr, former president, and chairman of the board, presiding. After opening the meeting and conducting the election of directors, Mr. Dorr introduced Claudius T. Murchison, president of the Institute, who presented the annual report of the president—his first appearance, by the way, in this capacity.

Address of Dr. Murchison

Reviewing the past year of Institute work, Dr. Murchison pointed out that after the invalidation of NRA, during whose tenure the Institute served chiefly as the agency of code development and administration, the organization has been experiencing a different relation to the industry, by clarifying the new concepts and organizing procedure for their accomplishment; he emphasized that the Institute is not primarily a policeman, "is no longer the wielder of authority; it is not an agency of enforcement, but rather of service."

He next discussed the problems involved in the voluntary maintenance of certain of the code standards, committing himself on these by declaring that "we must continue with all of the earnestness at our command to preach the gospel of the maintenance of certain fundamental standards as regards wages and hours. This gospel accepts as its primary assumption that the length of the working day and size of the pay envelope should not be important factors in business competition. We can accept this theory as profound truth and act accordingly without having to go so far as to prescribe the status of a particular machine operated by a particular individual in a particular place at a particular time. But the mere fact that a certain type of flexibility is desirable makes all the more important devotion to the principle and its continual reiteration by every individual who wishes to preserve the industry as a free and untrammeled part of the economic system."

Blackstone Studios.

Left, Dr. C. T. Murchison, president, and, right, P. B. Halstead, secretary of the Institute . . . . . .

Dr. Murchison then told of what the Institute through its various officials and divisions had accomplished during the year in connection with its relationships to the different activities of the federal government, reviewing the work done in connection with the AAA and the subsequent windfall tax; the Ellenbogen bill, sales of cloth to the Philippines and the pressure of Japanese cloth imports into the United States; activities with the Department of Agriculture as to the promotion of cotton fabric roads; the Walsh-Healey Bill; and other activities.

Two-Way Cent-a-Bale Plan

On the subject of promotion of cotton goods, Dr. Murchison pointed out that promotional efforts on the part of the cotton-textile industry have been on an extremely small scale, due perhaps to the many lines of cleavage that separate the various groups

engaged in the growing, processing and distribution of cotton; and told of definite plans, later detailed by Charles K. Everett at the meeting, to assure the effective co-operation of mills and distributors toward raising a substantial fund to finance a broad program of cotton goods promotion. He told of the work done to date in connection with the desirability of cotton covering for cotton bales and legislation for net weight trading to make its general use practicable.

Coming next to the instability of the industry, which he called "our most pressing and persistent problem", Dr. Murchison analyzed the conditions in the industry, declaring that stability involves much more, from the standpoint of production, than the application of the 80-hour week doctrine as regards machine hours, because, he said, "although much progress has been made during the past decade, and especially during the past five years, toward the elimination of the industry's excess equipment, it is still true that the industry is an over-capacitated industry if it is to operate permanently on an 80-hour per week schedule," and "on the fringe of the industry there are still many marginal plants containing several million spindles and a proportionate number of looms which continue to stand as a po-

W. M. McLAURINE, secretary-treasurer of the American Cotton Manufacturers Association, who spoke at both the Institute meeting and coordination conference on compliance.

tential threat to overthrow the industry's balance as soon as a point of profitable operations is reached." The speaker also named, as another element in instability, "the market helplessness of many units throughout the industry"; that is, a total inability to relate the price of the product to the cost of manufacture. He then told of definite plans for a stabilization program, saying, in part:

Plan for a Stabilizing Organization

"The Institute has been authorized by its executive committee, and with the approval of its board, to direct an intensive study toward determining the desirability and practicability of establishing a definite agency of stabilization which will not only function co-operatively in the marketing of goods but will also undertake to expedite and enlarge the current efforts being made to retire or control the industry's supply of marginal or surplus machinery. It is not proposed that such an agency would be monopolistic in character or that it would normally be a competitor for business. By giving it support at strategic points at appropriate times it should prevent the development of those sudden and severe weaknesses which frighten away buyers and terrorize sellers. Although no agency can be devised which could or should stand in the way of long-time price trends, it must be remembered that there is a difference between a price trend and a manufacturing margin and there is no reason to believe that the latter should not be reasonably uniform whatever be the general trend of price behavior. If such an agency should prove feasible and should actually come into being, it will be through the joint efforts of the manufacturing and distributing groups and will serve equally the interests of both, which, in the final analysis, are in harmony."

Committee to Visit Japan

Taking up the problem of Japanese imports, Dr. Murchison reviewed the steps taken to date, and revealed a proposal to establish "a plan for private negotiations between the textile industries of America and Japan, the purpose of which would be to acquaint the Japanese fully with the factual situation confronting the American industry and to so interpret these facts as to make possible voluntary adjustment of exports to the United States in line with the obvious logic of economic and political reasoning." He declared that if such a procedure is not successful, "we have no recourse but to action which is unilateral and directly restrictive." However, he said, while our experience with Japan as regards the Philippine agreement might make international arrangements known as gentlemen's agreements to be regarded as fundamentally defective, he feels that the defects of this agreement may be removed. The proposal in mind, he said, is to have the factual situation put before the Japanese by a visiting committee of American mill men, and suggested that a definite announcement of concrete plans will be made within a few weeks.

In closing, Dr. Murchison spoke with confidence for the future, declaring that while the peak of membership in the Institute was reached during the code period, and that a number of resignations naturally occurred during the uncertain period immediately following the dissolution of the code, the present membership has returned to more than 70 per cent of the industry's active spindles.

Dr. Murchison was followed by Garland S. Ferguson, a member of the Federal Trade Commission, who told the Institute members of the activities of the FTC in connection with business, citing some of its past and present investigations and reports.

Plans for Fund for Cotton Goods Promotion

Charles K. Everett, manager of the New Uses Section of The Cotton-Textile Institute, speaking at the Wednesday afternoon executive session, discussed the subject of cotton products promotion, and revealed the details of a definite and constructive broad-gauge program of financing cotton promotion. He declared that plans have been made to enlist the aid of other factors—the cotton farmers and ginners, shippers, transportation agencies and other groups engaged in the growing and distribution of cotton and cotton goods, whose interest in cotton promotion equals that of the mills themselves. The first step in financing this co-operative program "was

to induce cotton shippers to contribute to the promotional fund on the basis of 1 cent a bale, the contribution to be matched dollar for dollar by the spinners. The idea has already enlisted the hearty support of such important shippers as Will Clayton of Anderson, Clayton & Co., Mr. Creekmore, of the American Cotton Co-operative Association, Mr. John McFadden, of George H. McFadden & Bro., Mr. Adolph Weil of Weil Brothers, and Mr. Robert J. Mayer, of J. Kahn & Co."

On this basis, Mr. Everett pointed out, on only 4,000,000 bales, the fund would reach $80,000 a year —with 1 cent from the shipper and 1 cent from the spinner for each bale handled. He felt very enthusiastic over the possibilities of exceeding this amount, and then detailed the plans as to what would be done with the money thus raised; mentioning the more intensive promotion of National Cotton Week, uses of cotton fabrics in road building, etc., etc.—a broad program affecting eventually the interests of practically every type of mill in the industry.

At the luncheon meeting of the Institute, Dr. Willard L. Thorp, of Dun & Bradstreet, formerly director of the Bureau of Foreign and Domestic Commerce, Department of Commerce, spoke briefly on current business trends, warning business men against undue enthusiasm because of the tremendous improvement which has occurred in trade.

In addition to Mr. Everett, speakers at the afternoon executive session included W. M. McLaurine, of Charlotte, who spoke on "Maintenance of the Industry's Employee and Machinery Standards". Mr. McLaurine brought a message of hope and encouragement, declaring that by far the majority of the industry's spindles are adhering to the code principles on hours and wages. Other speakers were: Robert R. West, of Danville, on "Textile Cycles and Cotton Mill Policies"; Frank I. Neild, of New Bedford, on "The Relationship of Seller to Buyer"; Leavelle McCampbell, of New York City, on "Net Weight Trading and the Jute Problem"; and William P. Jacobs, of Clinton, S. C., who reported on the conference of association executives, held on the preceding day.

The Tenth Anniversary Banquet

A fitting climax to the convention came with the Tenth Anniversary Dinner, held on Wednesday evening. This was an enjoyable and inspiring occasion, with the surviving members of the group which signed the Institute's incorporation papers and others prominent in the early history of the organization as guests of honor. The toastmaster was Colonel G. Edward Buxton, chairman of B. B. & R. Knight Corp., and president of several New England cotton mills, and the address of the evening was delivered by William D. Anderson, Sr., of Macon, Ga., chairman of Bibb Manufacturing Company.

Among the guests of honor present, in addition to George A. Sloan and G. H. Dorr, former presidents of the Institute, were the following "founders": Robert Amory of Nashua, N. H.; Stuart W. Cramer, of Cramerton, N. C.; George S. Harris, Lancaster, S. C.; Gerrish H. Milliken, of New York City; and Lee Rodman, of Cannelton, Ind.

In resolutions adopted at the executive session, the Institute endorsed the two-cent-a-bale proposal outlined by Mr. Everett; directed a canvass of cotton-textile manufacturers of the United States to enlist pledges of all mills to purchase their cotton solely on a net weight basis on all contracts entered into on and after January 1, 1937; and pledged its co-operation in furthering the progress of a program to co-ordinate the activities of the various industry associations, and authorized the president of the Institute to take such action as may be necessary to make this co-operation effective.

Co-ordination Conference of Association Executives

On Tuesday, October 27, immediately preceding the annual convention of The Cotton-Textile Institute, that organization conducted the first co-ordination conference of the officers of all of the associations affiliated with the cotton-textile industry. As explained by the chairman, President Claudius T. Murchison, of the Institute, the purpose of the meeting was to discuss plans looking toward the more effective co-ordination of the work of the various regional and state and group associations within the industry. As a result of the conference, definite steps were taken to develop such a co-ordination, and to hold regular meetings of the group.

The program of the meeting was designed to discuss a number of pertinent topics in which all of the associations were mutually interested. These included the matter of standards maintenance, as to hours and wages, discussed for the meeting by W. M. McLaurine. Mr. McLaurine flouted the rumors that the widespread adoption of a third shift in the industry is imminent, citing figures, to the contrary, to demonstrate that there is a high degree of compliance. The next subject was that of legislative activity on the part of the various associations, and was ably treated by Russell T. Fisher, president of the National Association of Cotton Manufacturers. Charles K. Everett, of the Institute's New Uses section, detailed the progress made in promotional work for cottons, and explained the two-way cent-a-bale plan for raising a fund for wider promotional work. William P. Jacobs, secretary of the Cotton Manufacturers Association of South Carolina and of the Print Cloth Group, spoke on the subject of public relations between the industry and its associations and the general press and public. C. Whitney Dall, president of the National Rayon Weavers' Association, spoke on the subject of co-operation with non-cotton associations, emphasizing particularly the need of co-ordinated activity as to legislation affecting all divisions of the industry.

There was a great deal of practical value developed during the open meeting of this group on Tuesday morning, and in the executive session in the afternoon, which was devoted to a round-table discussion of the subjects presented during the morning. A net result of this conference will be the establishment of closer working arrangements and more effective efforts on the part of the industry's associations—now recognized as an essential part of its operations.

Value of LARGE PACKAGES Discussed at Meeting in Durham

LARGE PACKAGES throughout the mill, the advantages of making them, the means whereby they may be made, and the limitations upon the size and weight of packages, formed the subject of an unusually interesting and valuable discussion conducted by the Eastern Carolina Division of the Southern Textile Association in the Erwin Cotton Mills auditorium, West Durham, N. C., on Saturday morning, October 31.

Full credit must be given to the committee which planned the meeting, and to the chairman of the discussion, W. H. Miley, Jr., for the success of the discussion. It was clearly evident that a great deal of time and thought had been applied to the preparation of the meeting, and Mr. Miley handled the discussion in an effective and capable manner.

In the beginning of the discussion, P. B. Parks, Jr., superintendent, Mill No. 5, Erwin Cotton Mills Company, Erwin, N. C., who is chairman of the division, explained that the discussion would be confined to Large Packages, from the picker through the loom, and after the preliminaries, turned the meeting over to Mr. Miley, who is superintendent of the same company's Mill No. 2 at Erwin.

W. H. MILEY, Jr., superintendent of Erwin Mill No. 2, Erwin, N. C., who led the discussion on large packages at Durham . . . . . .

Mr. Miley explained that the term large package would be construed to apply not only to packages of larger size, but also to heavier packages, and that the intent of the meeting was to explore the subject largely on the basis of existing equipment in a mill and not to consider primarily what might be achieved by the replacement of present equipment with more modern machinery.

Larger, Heavier Laps at the Picker

He further explained that the subject, in the case of each machine, would be considered in the light of the advantages of larger packages (at that process and subsequent processes); the limitations placed upon the size of packages (at the process being considered and subsequent processes); and the possibilities or rather the means of achieving the larger packages. Starting at the picker, he asked for discussion of larger, or heavier laps.

V. E. McDowell, overseer carding, Rosemary (N. C.) Mfg. Company, said, "As to the advantages of having a large or heavy lap made at the picker, I would say the first thing is it gives the picker tender a better opportunity to doff his machines. If a hand is doffing six pickers and the lap weighs 45 pounds, he has a longer time to doff these machines than if he were making a 40-pound lap. He gets to them when the knock-off operates; and if a lap runs on after the knock-off works the lap will be stretched. If you make the lap as large as possible to feed the card you have an advantage for the card hand also." Thus, summarized Mr. Miley, "you lighten the labor load at the picker; make less creeling at the card. What advantage is there in that?"

Mr. McDowell explained that with less creeling at the card there is less unevenness in the sliver coming from carelessness on the part of the card hand in creeling; that there is less likelihood of chokes being caused and making bad work. M. R. Harden pointed out an improvement in quality coming from the use of larger laps, and illustrated his point by exhibiting two laps weighing the same, but one of which had been with the proper amount of friction and the other showing up more fluffy and irregular due to improper friction at the picker. These laps formed a part of an extensive exhibit shown at the meeting of large and ordinary-size packages from pickers, cards, roving frames and spinning frames, which was referred to frequently during the discussion.

Summarizing again, Mr. Miley brought out as advantages of large laps "More production at the pickers, less waste at the card, and asked for the limitations on large packages. Mr. Harden referred to the space available at the calender rolls on the picker, declaring that if the lap is too large it will rub there; another man cited the space available at the back of the card as another limitation. P. B. Parks, Jr., brought out that if a lap is too large, with uneven friction, stretching and bad screening will result causing the lap to be too fluffy or too solidly built, then it will later expand and make uneven sliver; "so you should try to keep a lap not larger than you can make uniform from one end to the other."

Someone asked how large a lap was ever made and run successfully. Mr. McCombs of Raleigh declared that "I have run a 48-pound lap (total weight) which was a net cotton weight of 45 pounds, 14½ ounces to the yard, and didn't have any difficulty in running it; for a while we ran into trouble because we did not keep our friction shoe correct, but with this shoe in proper condition, on the type of cards I had at the

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Reported by Robert W. Philip.

time, I had no difficulty running it."

On the assumption that a 45-pound lap is the top limit, Mr. Miley then asked, "if you are not making that large a lap, what can you do in order to get it." Mr. Byrd of Erwin Cotton Mills declared he would first work on the frictions, to get them tight enough but not too tight to cause broken pins, and go over the machines carefully. Mr. Miley asked whether the condition of the machines themselves would have any influence on the size of package, and it was pointed out that proper screening is absolutely necessary, and that if the drafts are not right and the cotton is not distributed properly, soft, spongy laps will result.

Full Cans from Cards and Drawing

Going next to the cards and drawing, Mr. Miley asked for the advantages to be derived here from large packages (or, rather, full cans). "I should think one advantage would be in less handling of the stock," said Ernest Davis. He declared that if the humidity is correct, the sliver packs better in the cans, and that with ideal humidity he has been able to make cans that would run 45 minutes at the next process instead of 30 minutes. There is less labor, and less handling, with full cans, he said. Mr. Miley added that larger cans produce less piecings with the obvious benefits therefrom. Mr. Harden brought out that "when you fill the cans full you do not have as much bad work because you are apt to get more bad work, the more you handle the stock." Less piecings at subsequent processes was another advantage cited by Mr. Byrd.

As to the limitations upon the size of cans, Mr. Harden brought out that the space from the coiler table to the coiler head is a limiting factor. The chairman asked "whether you fill the can until it touches the coiler"; and Mr. Harden replied he has a certain specified time for doffing at the sound of a bell. D. F. Lanier of Oxford (N. C.) Cotton Mills brought out that, "when you have filled a can full enough, the pressure begins to chafe the sliver or roving after you have reached the limit. We have to change our production gear on the cards as our numbers change, and we have worked it out to where when we see signs of the chafing we doff."

Thus, Mr. Miley interpreted, another limitation is that of danger of damaging the fiber; he asked whether possible damage to the machine is another, and Mr. Lanier replied "I have never run them full enough to find that out yet."

Grady Lyon of Erwin Cotton Mills exhibited two cans of drawing sliver, one filled in 1 hour and 25 minutes with 13 pounds of net cotton, and the other containing 12½ pounds of net cotton run in 1 hour and 15 minutes. "We waste our time and money by short doffs," he declared. "It pays to put as much as possible into the cans."

When the chairman asked how larger packages could be obtained, J. V. McCombs told of being able on a 56-grain sliver, with adequate humidity over the cards, to get 14 pounds in a 12-inch can instead of 10½ pounds, the previous standard, gaining 3½ pounds in a can as a result of proper and regulated humidity. Mr. Olin of Erwin said that the proper attention to the size of the trumpets in order to get the correct condensation of the strand will aid, but that "if you condense it too much you will have trouble at the next process."

"One possible means is the fact that you can change the relation between the can table and the coiler head insofar as space is concerned," it was mentioned by P. B. Parks, Jr., "and throw the sliver so it goes to the edges of the can and no further, and you will also get more usable space by cutting down on the hole left in the center." He demonstrated here by showing two cans of sliver, one with a large hole in the center and the other with a smaller hole, stating that "the smaller hole you have in the middle, and the nearer the edges of the can you get, the nearer you approach the maximum limits of what the can will hold."

"You can change the speed coiler head or can table or both," brought out the chairman. "What about

P. B. PARKS, Jr., superintendent of Erwin Mill No. 5, Erwin, N. C., who as chairman of the division presided at the Durham meeting . . . . .

the condition of the machinery; does it have any limiting effect on the size of the package?" Mr. Olin brought out that on a card the condition of the equipment has a right smart to do with it because if the can table becomes worn the largest possible can cannot be built.

E. A. Horner asked whether anyone, in trying to get larger packages at the card and drawing frame, had tried using a can larger than 12-inch. No one answered affirmatively, but Mr. Olin indicated that a report on such a test might be made at the next meeting.

V. E. McDowell asked whether anyone had tried reversing the turn-table. He had not done so but had been told this would put more sliver in the cans. Mr. Byrd replied that he had tried this, but he couldn't tell any difference in the amount put in the cans. "We have 10-inch coilers on a 12-inch plate," he said, "and this 10-inch coiler will fill them full, and close up that hole Mr. Parks was talking about; and when you get a can full, it is *full*."

"We have some of the new controlled draft drawing frames which are fed by laps on the back," said W. V. Byers of Erwin Cotton Mills, "and that determines the production of the machine. We found we could run a longer lap and the only limitation is the amount you can get in the can. Could we raise the drawing frame up higher and get more space above the cans?" No one discussed this question.

As to means of achieving larger packages from the card and drawing, J. W. Cates, superintendent, Edenton (N. C.) Cotton Mills, mentioned changing

the spring on the calender roll friction and using smaller trumpets for better condensation as a means of getting more sliver into the cans.

Larger/Heavier Roving Packages

The advantages of larger or heavier packages from roving frames were next discussed. "We have a .50-hank roving made on a 12x6 frame," said Mr. Byrd of Erwin, "and we changed the taper some time ago and took off a 12-tooth gear and put on a 13-tooth gear; with the 12-tooth gear we got 37 ounces on the bobbin and with the 13-tooth gear we got 40 ounces on the bobbin. We did this because we needed all the

G. F. Brietz M. R. Harden W. F. Byers

production we could get." With heavier packages, he said, "you have less piecings, less creeling, less doffing, and less waste. I went on with it, holding the same diameter bobbin, and on that bobbin we got 3 ounces more roving. On my job the saving figured 87 pounds a day, or 522 pounds for a 6-day week."

Limitations on the size of roving packages mentioned by Mr. Harden included the size of the flyer, the length of the bobbin, the build, the length of stroke the carriage will take, and the spacing in the spinning creel. Mr. Parks added that an important limitation to consider is the ability to get the roving off of the bobbin. "We can all get a lot on the bobbin," he said, "but we might not be able to get it off successfully at the next process. You cannot run a shorter taper than you can run off successfully at the next process."

Mr. Harden here demonstrated two samples of roving bobbins, one with a great deal more roving on it than the other, one with a long taper and the other with a short taper.

The chairman asked for means of achieving the largest possible roving package, and Mr. Harden said, "first I would see that my frame was in good shape, that the pressers, flyers, spindle tops, etc., were mechanically right; then I would see that my lay was right; then see if we were getting a full stroke, and check the taper—all of this based on whether it would run off in the spinning creel."

Mr. McCombs asked whether others present regarded the pressers as sent out by makers new to be absolutely correct; "or can you change that presser to increase the weight of roving on the bobbin?" Mr. Harden replied that it is possible to bend or curve the presser, and "we have thought we could do that, but it never did the work any good."

The chairman next took up the subject of "larger packages" for filling quills, meaning "not larger in diameter, but heavier", and asked for discussion as to the advantages. J. M. Morgan said the first big advantage would be that "you would cut the doffing cost in the spinning room and then you would also have less battery filling to do, and less quill changing in the loom;" and Mr. Brown pointed out that there would be less piecings and consequently less thin places. It was also brought out that with the filling quills running longer in the shuttle the loom would not be so apt to get out of fix; and that the inspecting job in the cloth room would be reduced. "The whole thing," said T. W. Mullen, superintendent, Rosemary (N. C.) Mfg. Co., is that you are handling fewer bobbins." He said the advantages were very plain to him because he runs varied numbers and constructions, some of his quills running for 2 minutes and others on other work running out in 35 seconds; and he declared that the advantage of larger packages of filling are clearly evident in the quality of the cloth. "I think another advantage is having less wear on the quills," declared Grady Lyon. "Of course, if they are not 'filled full' you are bound to be using them more frequently, with more wear on them at the transfer and in the quill cleaning machine on feeler work." Also, he pointed out, the total amount of feeler waste will be reduced on feeler goods "because every time you transfer a quill you have a certain amount of waste."

Larger, Heavier Filling Quills

The limitations listed on the size of quills were headed by the size of the shuttle and the size of the ring; Mr. Harden mentioned the build of the bobbin, and Mr. Miley emphasized that "of course you must have a package that will run off in the loom." Mr. Parks pointed out that the size of the shuttle "both ways" is a main factor to be considered as a limitation; also that "we must consider the speed, the kind of shuttle box, how hard we throw the shuttle, how much momentum we have to overcome—all of these things affect the taper we can put on the quill."

Mr. Harden told of putting an extension on the lay end which permitted an increase in the shuttle and quill. He also added a bobbin former on the spinning frame, and in working for length, he raised the thread board. At first he thought he wasn't right, due to too much angle from the quite to the bite of the roll, but soon found he had an advantage in more yarn on the bobbin and also cut down on the balloon on filling-wind quills." Mr. Harden was discussing the possibilities or means of securing better-wound packages, and J. O. Creech, overseer of spinning, Selma Cotton Mills, stated he had found that you can increase the yardage on the bobbin by running a heavier traveler and by running the racks down fast and up slow. Asked what he would do to increase the yarn on his package, Mr. Hughes of Erwin said he would make certain first that the frame was in good mechanical condition, with the spindles plumbed, the guide wires properly set, and the proper stroke and taper; and he said speeding up the ring rail would prevent sloughing off. Mr. Harris of Selma agreed, stating that by speeding up the ring rail, you can get more

yarn on the bobbin, and also "it cuts down the balloon and makes the yarn wind on more firmly."

V. H. Carr, overseer of spinning, Durham Hosiery Mills, Carrboro, N. C., stated that heavier travelers are probably all right for weaving mills, but that his mill makes soft-twist yarn for hosiery, and if he goes heavy on his traveler to get a fuller package it stretches the soft-twist yarn.

The chairman suggested the pick gears as a possible aid in getting better packages, and A. W. Faris pointed out that these of course control the size of the bobbin. P. B. Parks, Jr., pointed out that there are on the market some staggered cams which it is said will improve the package and reduce sloughing off, and Mr. Macon of Haw River stated he uses these with good results; he runs with a shorter taper and binds from the nose of the bobbin all of the time.

Larger-Fuller Warp Bobbins

J. O. Creech discussed the matter of the advantages of better-filled warp bobbins when it was brought up next, declaring that "we find that by putting more yards on the bobbin it lessens our spooler hands' work, saves waste, saves stoppage at the warper, gives less kink and knots, and reduces the doffing. The spooler hands can do a third more work, with less labor all of the way through, and less bad work in the cloth room."

Under the subject of limitations of ideally-wound packages, Mr. Brietz pointed out that the best results cannot be secured without essential humidity conditions, as with the proper humidity "the bobbin will pack harder". Physical limitations, he said, include the length of the bobbin, the size of ring, and gauge of frame; and the chairman again observed that a determining limitation is that the bobbin must be made so that the yarn can be readily taken off of it at the next process.

As to possible means of achieving better packages on warp bobbins, Mr. Cates pointed out that he had increased the length of the yarn on his bobbin from 7 to 7½ inches by applying a traversing thread board which had been made at the mill.

At this point Mr. Parks exhibited and discussed several of the large-package warp bobbins on display at the meeting, commenting on both the good and the bad ones and pointing out some obvious defects and shortcomings in a few.

Larger Spools and Cones

The chairman next asked for the advantages of larger packages in winding and spooling, and called on Mr. Hughes to discuss this as to winding; Mr. Hughes said that larger cones of course produce less doffing, and less waste, and lighten the winder hands' job, and produce less creeling at the warper. The chairman brought out from Mr. Hughes that a great percentage of the bad work in winding is developed during the starting up of the cone and that naturally larger packages decrease the number of start-ups and therefore the amount of bad work at this point. The limitations on package size at this point were listed as being the space in the machine itself as well as in the warper creel being supplied by the cones or creels. Mr. Lanier brought out that another limitation is the thickness of the spool and he had gotten more yarn on by using thinner-headed spools. Mr. McCombs pointed out that the number of the yarn is a limiting factor—for, he said, you wouldn't make a 2-pound spool of 30s, you never would get it off at the warper, and Mr. Miley agreed, stating that the weight inertia to be overcome by the strength of the yarn in a rotating spool is a very definite limitation.

Coming next to the warpers, the advantages of larger section beams as summarized by Mr. Harden and Mr. Hughes were the fact that a mill can make longer slasher sets, which run longer in the slashers and cut down on slasher waste and decrease the number of beams handled all of the way through; and the warper tenders have less packages to handle. The limitations were listed as being the space in the warper and in the slasher or beamer creel. Mr. Harden added to the list the construction of the warper; he states he has one machine converted to a high-speed warper, with a new cone creel, but that he cannot run that machine quite as fast as the new one, because the new one is more rigidly built, with ball bearings.

Mr. McCombs brought out that if the beams are to be dyed, the type of dyeing establishes limitations on the size of the beam, that with one component dye you can run up to 350 pounds on the beam, but with several different dyes in the mix you must sometimes cut the package down to 150 pounds.

J. O. Creech

J. W. Cates

V. H. Carr

As to means of achieving larger beams, the chief suggestion was proper tension. It was felt that most mills simply do not exercise as much care as they should and that with a little more attention many could increase the amount being put on simply "by running them a little fuller".

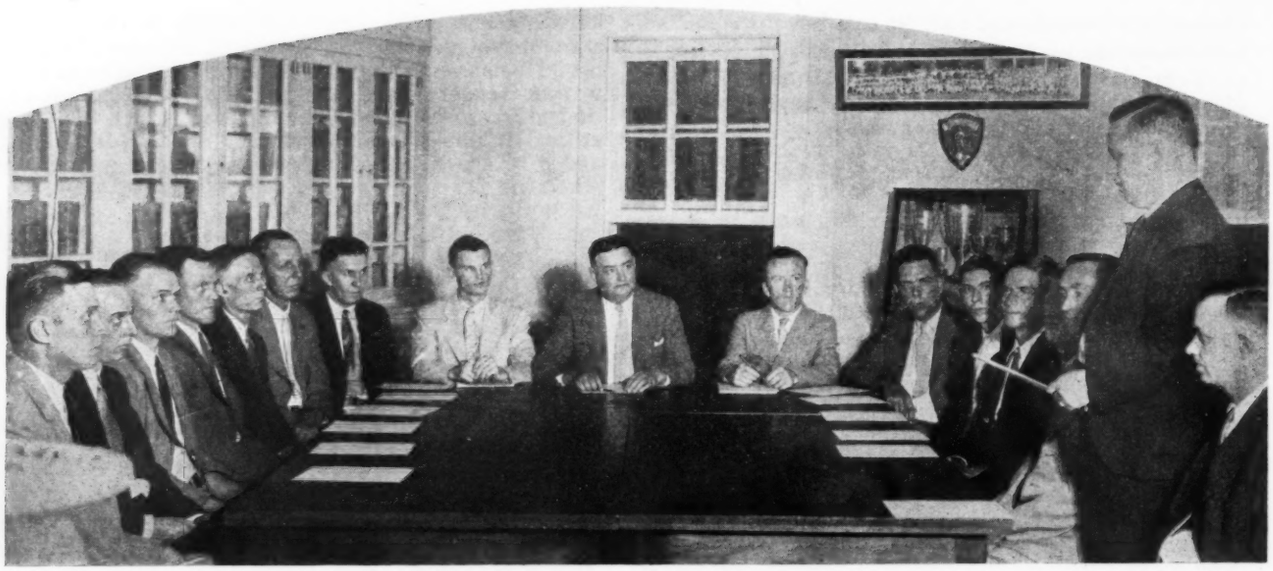
Large Loom Beams and Cloth Rolls

Slashing came next, and J. R. Caldwell listed as advantages of larger loom beams from the slasher the fact that there is less doffing to do, less tying-in and consequently less tying-in waste, and reduced cost. A loom fixer from Erwin Mill No. 6 was called upon and stated that one advantage is that "you do not have to roll as many warps. It saves production and cuts down waste, with fewer warps to run out." Mr. Miley added that in addition to less waste there is less labor for the loom fixer in number of warps to change, etc. Mr. Harden asked how to secure a harder, firmer loom beam and Mr. McCombs said this may be done by proper increase of tension at the slasher, but that the tension should not be applied between the beam and the roll.

The limitations given were the available space at the back of the loom and at the slasher in front.

Large rolls of cloth as the product of the loom were the final item discussed. Less doffing, better inspection, less handling, etc., were among the advantages offered; as well as the fact that in running long rolls the number of short lengths may be reduced. Mr. Brown pointed out that a limitation was the space available in the front of the loom; he also pointed out that there is less opportunity, in making long rolls, to catch immediately defects reported back from the cloth room.

This concluded the discussion. Before adjourning the chairman stated that undoubtedly a great deal of the value of the meeting had been accomplished before the meeting itself occurred—in causing the men to improve their own conditions to produce the large packages on display. The next meeting of the division will be held at State College, Raleigh, N. C., during the spring of 1937.



The group at one of the general meetings in the community house with men from both shifts in the card room present. Left to right: J. A. McGill, frame fixer; Morris Rape, card grinder; W. S. Dennis, drawing fixer; J. P. Garrett, card grinder; A. G. Smith, picker room; R. C. Pate, picker room; Homer Forbus, card grinder; W. A. Turner, assistant superintendent; J. L. Byers, superintendent; W. S. Mitchem, overseer; E. T. Guy, card grinder; W. G. Dean, drawing fixer; M. L. Connell, card grinder; Jim McGill, card grinder; G. B. Shaddix, frame fixer; L. R. Pittenger (the author), second shift second hand; and J. S. Berry, card grinder.

Building Efficiency Through Regular Meetings of the Plant's Key Men

By L. R. Pittenger

(The recent discussions in our "How Other Men Manage" *department about the selection and training of loom fixers prompted a southern mill man to submit this article, describing specifically a program that is working out successfully in his card room, and that could be readily applied to any department of any type of mill. It tells in detail of a program of regular meetings of the supervisory force as held at the Bevelle plant of Avondale Mills, at Alexander City, Ala. The idea can be used at any type of mill.*—The Editor).

ONCE EACH WEEK we have a meeting of the section men on each shift in our card room, and every six weeks we have a meeting of all of the section men on both shifts, usually on a Saturday at some out-of-town point; and usually have a fish-fry, chicken dinner or something of the sort. These "spreads" are paid for by small contributions from each man. The superintendent and his assistants are invited, and after the meal a general discussion of the work in the department is conducted.

Each man is called upon for a short talk in which he can bring up anything he desires about the job. Each question and suggestion is carefully thrashed out and is either answered, approved, or discarded before the meeting is over. Naturally sometimes impractical ideas are brought up, but these are given consideration along with the rest, and are proved to be impractical before they are discarded.

But, some very good and practical ideas have been developed in this manner, for we often find a good idea in disproving a bad one. Each man is thus able to get all of his own pet ideas off of his mind, and a lot of new ones are substituted in their place. Each man also realizes the importance not only of his job but of what he thinks about the job, and he can see that his thoughts and actions are receiving consideration not only by the overseer but by the management as well. This promotes serious thinking, and when you get a man to thinking you can get results. It has not been many days since one of the older operatives in the department came to me and asked, "What have they been doing to this job and who is doing it? I have never seen it running better or so smoothly." He did not know just what had been done but he could see and feel the effects of some real efforts at co-operation. In my opinion, whenever you do something that can bring results like this, you have certainly accomplished something indeed.

In addition to the regular meetings, regular weekly inspections are held. These inspections are made by a committee of three section men appointed by the overseer at the regular meeting. Each section man in the department serves on this committee in rotation. This committee inspects the job from one end to the other and makes out a report of its findings, one copy of which goes to the overseer and the other to the main office. On this report the committee puts everything

it can find wrong or out of place and also makes any suggestions for remedying any conditions that need improvement. A sample of a recent report of this committee follows:

Opener Room: Steam valve leaking, causing wet floor. Safety not working on horizontal cleaner. Suggest that return system fans over the opener room be cleaned twice a week. Found buckles from cotton on the floor, suggest that these be removed when the cotton is opened as each is a potential fire hazard.

Picker Room: Warp side condenser fan has bearing that needs attention, it is leaking oil and rattling. Fixers' work-bench needs cleaning, both on top and inside. Found empty soft-drink bottles on the floor. Found loose ground wire to starting switch on vacuum stripper tanks.

Card Room: Found several top window catches not working; also one bad window frame. Ends of drum rolls gummy; these should be washed and more care taken in oiling them. Comb box on card No. — leaking oil. Suggest that sweepers be trained to sweep back alleys just before laps are to be laid. Any laps that are then let down enough to touch the floor will not get dirty.

Drawing: Found noisy head gears on frames Nos. — — —. Shaft hangars leaking oil on drawing. Uncovered junction box on ceiling letting oil leak on Frame No. —. Found waste can under head of frame; suggest these be moved to prevent oily waste.

Slubbers and Intermediates: Found change gears on top of creels. These should be taken down so that roving will not be laid on them and become soiled. Found fixers' work-bench flat on floor; this should be raised at least four inches and kept cleaned underneath. Found dirty coat cupboards; these should be cleaned out at once. Several pairs of discarded shoes under frames. These should be thrown away.

Procedure of Weekly Meetings

The regular weekly meeting is opened by the overseer who, after calling the meeting to order, reads the report of the last meeting. The suggestion of each man that was turned in at the last meeting is read and the results tabulated and discussed. Then the overseer gives the general subject or objective for the coming week which may be, for example, "This week we will make a special drive to reduce waste." The report of the inspection committee is then read and discussed and any faults are referred to the man on that particular job for correction. All suggestions are gone over carefully and either adopted or discarded. Every man has the privilege of the floor at any time and can express his thoughts on the subject under discussion freely. Each one then reads his special objective for the coming week, which is written out and signed by him and turned in at each weekly meeting. Examples of these special objectives follow:

I will see that all dust flues are cleaned out (picker room).
I will watch for and correct bad selvages (picker room).
I will pay special attention to the laying of laps (card grinder).
I will check and re-set all backs that are putting out too much (card grinder).
I will make a special drive for a good general clean-up (card grinder).
I will pay close attention to the webs (card grinder).
I will see that the tensions are correct (drawing fixer).
I will change top clearers (drawing fixer).
I will make a special drive on break-backs (frame fixer).
I will see that all cleaning up is done at the proper time (frame fixer).

Anyone who has any special hints as to the proper way of arriving at these objectives then has the floor, and after this discussion the meeting is adjourned.

Better Understanding Promoted

These meetings have promoted a better understanding between the men, of each other and of the job and have been the cause of very close co-operation. Everyone realizes that the things brought up at the meeting are not brought up in the spirit of criticism or fault-finding but are mentioned for the good of the job and of everyone concerned. It is nothing uncommon to see a section man go to another section for advice on something that has come up, because they all realize fully that they are a part of a closely knit organization that is working for the betterment of everyone concerned as well as for the job in general.

The system has proven to be well worthwhile here and I think is capable of producing like results on any job or in any department where it is given a fair trial.

Power factor is the same as a glass of beer with foam on it. You pay the same price for a glass of beer whether it has a lot of foam or just a little. But when you buy beer that is mostly foam, you are not getting your money's worth; when you get all beer—well that's different. The same applies to an electric motor: when you are paying a lot for power and getting only a little material good from it, that's buying beer with foam; when your motors turn out a higher percentage of work for the power sent in them, then that's like getting beer with just a little foam. Thus raising the power-factor is like reducing the amount of foam on a glass of beer.

It is just as essential to carry depreciation in the expenses, in figuring cost, as it is to carry the price of supplies.

The length of a tightly coiled belt may be measured by multiplying .1309 by the number of turns times the sum of the diameter of the roll and the diameter of the hole in the coil. For instance, you have a belting roll come in that measures 43 inches in diameter. The hole or eye is 6 inches in diameter and there are 87 turns. Then substituting in the formula $.1309\ T \times (D + d)$ *we get:* $.1309 \times 87 \times (43 + 6) = 557$ *ft. in coil or roll of belt.*

The Increasing Use of Rabbit Fur in the Textile Industry

By James A. Jonas
Vice-President, Pellissier, Jonas, & Rivet, Inc., Walden, N. Y.

A SPECIALTY fiber that has found increasing use . . . Here the accomplishments and possibilities of treated rabbit fur are described by a pioneer in its development . . . . . .

CONSISTENTLY increasing use of rabbit fur as a fiber for textile yarns and fabrics in combination with wool, spun silk, and more recently, spun rayon and cotton, has been an interesting development during recent seasons. Many experienced mill men who remember the passing vogues for rabbit hair as surface decoration years ago, when the stiff white hairs only were used from time to time merely to frost the surface in hairy effect, have found in recent years that use of rabbit fur, with relatively small percentages of hair, gives to many yarns and fabrics certain extra qualities of hand, drape and appearance that add materially to the sales possibilities of the products.

To no small extent the increased textile use of the soft rabbit fur in recent seasons is attributable to development of a special process by which the fur, before spinning, is treated to prevent fly and static in the mill, to make the fur run easily in spinning and subsequent textile operations of knitting or weaving, and to reduce shedding in both yarn and finished fabric. This special treatment, developed in the laboratories of Pellissier, Jonas & Rivet, Inc., at Walden, N. Y., has largely removed the obstacles mentioned to textile application of fur fibers, and reduces the difficulty of blending the fur, which is generally of a different staple length from other textile fibers into yarns of uniform quality. The treatment gives the rabbit an affinity for other fibers, which adds to ease of spinning.

This swatch shows a combination of rabbit fur and spun rayon. The rabbit fur works outward in the fabric, increasing both the appearance and the hand . . . . . .

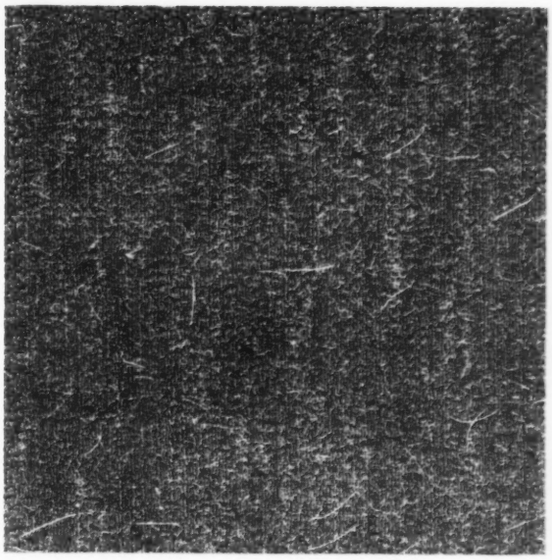
Since this specially treated fur has been available, rabbit fur has won a definite place of its own as a textile fiber. Blended with rayon, cotton or wool, it makes possible many novelty effects in both appearance and texture that increase salability of the product. The blended yarns are widely favored because of their versatility in producing new effects.

Initial use of rabbit fur in the textile industry was in combination with wool. Here it serves to improve softness of hand and drape and to lessen crushability in fabrics. When rabbit fabrics are used with wool, the wool may be stock dyed, or the blend may be yarn dyed or piece dyed, the rabbit taking the wool dye without any difficulty. In combination with cotton or spun rayon—more recently developed blends—a union dye is used to achieve monotone effects. If the rabbit fur is to be left its natural color a cotton or rayon dye, which does not affect the rabbit fiber, is employed.

General textile usage of rabbit fur is to blend the fiber principally in the filling yarn; it can also be used in the warp. Twenty per cent treated rabbit fur in the filling will give a fabric a highly desirable hand. In either filling or warp, introduction or rabbit fur lessens breaking strength somewhat, but not sufficiently to make trouble in running.

When rabbit fur and rayon are blended, the following procedure is used: A layer of rayon is put down, then a layer of rabbit, then rayon, etc., until a mixture of the desired quantity and proportion is built up. The stock is forked to give a preliminary mixing, after which it may be run through either a three-process or a finisher picker. This operation serves to make a better and more even blend. When rabbit fur is blended with cotton, the same procedure is used, except that the cotton must be cleaned before the blend is started. All openings on the picker should be closed so as to eliminate any loss. When the blended stock is carded, it is best to slow the licker-in to 175 r.p.m. or 200 r.p.m.; both the licker-in and the doffer should be set close. The slowing of the licker-in is to reduce breakage of the fibers.

When wool is added to these mixtures, it is generally easier to make the blend of cotton or rayon and rabbit fur on the card, and then blend these slivers with wool slivers in the drawing, in the desired percentages.



Another example of rabbit fur blended with spun rayon. However, the fur may be blended with cotton, wool, and spun silk. Yarns up to 30s can be spun without any difficulty,, and as high as 50s have been run . . . . . .

Yarns up to 30s can be spun without any difficulty; as high as single 50s have been spun, but it is not easy to obtain an even yarn in these finer sizes. As the stock comes out of the card, the fur is delivered on top of the web and goes into the core of the sliver, but gradually works outside as the yarn spins down to size.

Rabbit fur comes in many qualities, and in two natural colors—white and gray. The various qualities are obtained by blending various grades of rabbit, both fur and hair, to obtain the effect, the quality and the price that the individual mill wants. The greater the percentage of fur over hair, the softer the fabric. If the percentage of hair is greater, a surface decoration is given the fabric. In any percentage and any quality, the specially treated fur spins into the yarn so that it does not float on the surface. Yarns blended with the treated fur can be spun so as to be largely free from shedding.

The special treatment acts as a preservative to fur; sample lots of fur which were treated as far back as 1932 are still in their original condition. Following the success of the special treatment as applied to fur fibers, experimental and development work along the same lines in connection with treatment of vegetable fibers is now being done. Interesting researches have been made and are continuing at various important textile schools.

New Text Book on Cotton Carding

A new and up-to-date text book on "Cotton Carding" by H. H. Willis and Miss Vernette B. Moore has just been issued. The work was completed under the direction of The Textile Foundation, Inc., Washington, D. C., and represents a course of instruction in the fundamentals of cotton carding. It is the first in a series of 6 texts on cotton yarn manufacture being prepared under the direction of a committee of The Textile Foundation consisting of F. M. Feiker, chairman, Henry W. Nichols, C. A. Jones, W. D. Fales, and H. H. Willis. The other 5 tests of the series will deal respectively with (1) Cotton Classing, (2) Opening and Picking, (3) Drawing and Roving, (4) Combing, and (5) Spinning.

It has long been recognized that many of the text books and text material available for use in textile schools, mill vocational schools, etc., are out of date or represent in large measure practice not applicable to American-made machinery; and that furthermore these books largely do not include material pertaining to recent improvements and developments. Also, a great need in textile education, previously unfilled, has been the unavailability of a comprehensive discussion of any given subject in one book. It has in the past been necessary to utilize parts of a number of different volumes for reference in order to round out study on a particular subject.

It was to overcome these deficiencies in textile literature that The Textile Foundation instituted the preparation of a series of tests, of which this one on "Cotton Carding" is the first. Mr. Willis is dean of the textile school of Clemson College, and Miss Moore is a specialist in educational methods; they have produced this work with the co-operation of the deans of the various textile schools and others who assisted in the compilation and organization of the material, and with the aid of the several machinery shops who furnished technical information and many of the illustrations. The result is a well-organized, comprehensive discussion of the cotton card and its manipulation, purposes, and uses; the book is designed primarily for use as an instruction text, and embraces the latest developments pertaining to this process. It is prepared in multilithed form, with ample illustrations, and contains 153 pages, including a number of blanks to be used in making various tests pertaining to the card, as well as a glossary of terms used in connection with carding, and a cross-index of the subjects covered. Copies may be secured from H. H. Willis, Clemson, S. C. The list price is $1.50 per copy.

Fabric Shipments by Air Increasing Rapidly

According to a report of the air express division of Railway Express Agency, shipments by air are increasing in number. In July more than 200 shipments of fabrics were flown. The heaviest class of shipments was *cotton goods*, because it includes samples sent from mills to factories and dye plants. Silks, velvets, and upholstery fabrics were also flown from the large wholesalers to fill special orders of their customers. During the 6-month's period from February to July inclusive, 1936, the report states that there were 212,635 domestic air express shipments flown. At Chicago, 98 planes a day, belonging to 6 different air lines serve patrons of the unified air express system, while fast trucks and special delivery to and from airports of all large cities complete the fabric speed cycle. It is interesting to note that the average charge on these rail-air shipments is about 22 per cent more than the average charge on all-air shipments, indicating that the average rail-air shipment is heavier or is flown farther than the average all-air shipment.

Extemporaneous Discussion of Subjects Held at Greensboro Meeting

A GOOD crowd attended and participated in this discussion meeting, which was conducted without a prepared set of questions; all topics discussed being brought up extemporaneously by those present. A wide variety of subjects was covered . . . . . .

THE FALL MEETING of the Northern North Carolina-Virginia Division of the Southern Textile Association was held at the King Cotton Hotel, Greensboro, N. C., on Saturday morning, October 3, with a good attendance. L. J. Rushworth, superintendent of the Riverside Division of Riverside & Dan River Cotton Mills, Danville, Va., presided as chairman of the division. W. L. Davis, assistant superintendent, Proximity Mfg. Company, Greensboro, N. C., acted as temporary secretary. Mr. Davis also was elected to membership on the executive committee of the division.

Before entering the practical discussion, the chairman introduced Herman Cone, treasurer of the Proximity Mfg. Company, who delivered a brief, interesting talk to the operating executives at the meeting, dealing mainly with the necessity of keeping up-to-date in methods and equipment. An abstract of Mr. Cone's remarks will be found on page 86 of this issue of COTTON.

Practical Discussion

In opening the practical discussion feature of the meeting, Chairman Rushworth announced that, instead of having the customary set of questions prepared for discussion, the executive committee had decided to throw the meeting open for any and all questions raised at the meeting by those present, covering any phase of mill operation.

W. A. Hunt, superintendent, Pickett Cotton Mills, High Point, N. C., started the discussion by asking for experiences with "loose drafting" on spinning, that is, using a smaller diameter middle top roll, unweighted. "We have been making some experiments with a 13/16-inch cork-covered roll, unweighted," he said.

"Loose Drafting" with Unweighted Middle Roll

"I have had quite a bit of experience on that," said Culver Batson, manager, Consolidated Textile Corporation, Lynchburg, Va. "We had a wooden middle roll, also one of steel, and made some out of aluminum and some out of cork; all of them seemed to work very well, and we had about the same results from all of them, and finally changed over quite a bit of our spinning to the light, unweighted middle roller made from steel because they were easier to make in our own machine shop.

"A lot depends on how the roving is prepared. As far as the roll itself is concerned, the whole secret is in the weight of that roll; you have a certain number of grains of weight to use for 20s, a different weight for 30s, and so on, and you must regulate the weight of this roll according to the yarn number. With this kind of roll, you get away from cockled yarn, and can handle uneven staple much better, and might get a little better draft, and I think it is a good proposition for old spinning if you cannot afford to buy long draft equipment." Mr. Rushworth asked about the diameter of the roll, and Mr. Batson replied that, "the diameter doesn't make so awful much difference; you must watch the ends of the roll to see that the roving does not run out and get down in there."

Mr. Hunt said, "We are pleased with the results we have obtained with this type of roll. We have increased our break about 6 or 7 pounds on 30s knitting yarns, and helped the uniformity of our yarn with 3 per cent less variation." His overseer of spinning, D. C. Anderson, asked for discussion of relative results from using this type of roll compared with simply removing the weight from the regular leather middle roll. Mr. Batson said, "We got better results with the smaller roll rather than just unweighting the regular middle roll because the small roll runs to the front and gives a little closer setting than you get with just an unweighted middle roll." Mr. Rushworth added that the idea is that the small middle roll places the bite closer to the front roll and permits a better control over the short fibers and thereby gives a "long draft".

L. J. RUSHWORTH, superintendent of the Riverside Division of Riverside & Dan River Cotton Mills, who presided as chairman at the Greensboro meeting . . . . . .

L. V. Andrews, superintendent, Martinsville (Va.) Cotton Mills, asked Mr. Anderson whether in using the small middle roll he closed up the steel rolls on the front, and the reply was in the affirmative.

"I had an experience with this unweighted middle roll," reported J. C. Farmer, assistant superintendent, Fieldale (Va.) Mills. "Our object was to eliminate speeders. We were making 18s from 3.50-

Reported by Robert W. Philip.

hank double roving, and with an unweighted middle roll that weighed around 2,200 grains, we changed to a 1.10-hank single roving, and that gave a draft of around 16½, and we were able, by increasing the cotton from 1 to 1 1/16-inch, to run this 18s with the same strength in the yarn; another thing we gained was the elimination of the speeders in using the heavier roving on spinning."

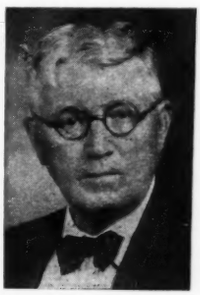
Mr. Anderson asked about the effect on the evenness of the yarn. "We changed one frame over and found we had to increase the break draft to about 1.25, in order to keep the roving from running out the sides," he said. "We did find that we had a yarn that was just as strong, but I do not know that it was any better or more even."

Running Pattern Warps on High Speed Warpers

The next question was from R. K. Craven, overseer weaving, Minneola Mfg. Co., Gibsonville, N. C., who asked for experiences with handling pattern work on high speed winding and warping. Mr. Rushworth answered as to a method on automatic spooling and high speed warping, by saying that he has found it entirely practical. He said that, "unless you get into very elaborate patterns they can be creeled in the high speed warper very satisfactorily. You will have to re-arrange the plan of the pattern to take care of the ends with the 12 cheeses on each board, setting the tridents on the trident board and planning the pattern so as to work out satisfactorily. Two colors are simple, and three colors are harder, but as soon as you have a man trained to follow the designs, you can work it out all right. It is just a different form of building up the creel."

G. E. Moore

R. K. Craven



W. J. Jennings

Mr. Rushworth explained that he uses the Brandwood method of dyeing packages, dyeing 8 beams at a time or shutting the pressure valve off on the spaces not used, if a smaller number are dyed. He said they do quite a bit of bleaching in this way.

Long Draft Spinning—Overhead Cleaners

Experiences with long draft on carding and spinning machinery, in the light of "whether I can expect just as good or better breaking strength and whether my spinners can handle as many sides," were next requested by L. A. Elmore, superintendent, Rhodhiss (N. C.) Mills. W. J. Jennings, overseer of carding and spinning, Minneola Mfg. Co., replied, declaring that with long draft spinning, more fly will result, and the only solution is the installation of an overhead cleaning system. He reported a test made the previous week which shows that on 26s warp made from 15/16-inch cotton, with a draft of 14.56 and a twist multiple of 4.75, he got an average number of 25.98s and an average break of 66.83 pounds; changing the twist multiple to 4.56 gave an average number of 26.09s and an average break of 66.41; and with a 5.03 twist multiple, he got an average number of 25.88s with an average break of 65.37. "On the same work," he said, "I made a test of end breakage per thousand spindle hours, and on Monday the end breakage was 50 to 55 on the afternoon shift, and the next day it was 46; that end breakage is not so bad." He runs long draft spinning with cork rolls, he said, and again emphasized the necessity of overhead cleaning in connection with long draft work. "These cleaners do help a great deal as to the number of spindles a spinner can run," said D. C. Anderson, "because they clean and keep a lot of short fibers down." J. C. Farmer added that he runs long draft, and finds that the lesser amount of creeling necessary by using the larger supply package cuts down on the work the spinner has to do and compensates for the additional cleaning necessary. He asked for discussion of the overhead cleaners, declaring that, "We have thought about installing the bunchless cleaner; on our system of long draft it is very hard to keep clean around the cots."

A user of overhead cleaning, John D. Scott, overseer of spinning, Proximity Mfg. Co., Greensboro, declared that, "the bunchless cleaner has a tendency to break the fly up and doesn't pack it down, and then what is accumulated is wiped off by the spinner. But you must watch the cots down in behind the roll; if not the cleaner will blow it in under the cot. I think the cleaner works fine in breaking the fly up and keeps it from accumulating. I know that when one of our cleaner fans breaks down and we have to do without the cleaner for a couple of hours, we have to shut the frames down and clean them off good by hand." Answering Mr. Farmer, Mr. Scott said he uses the revolving top clearer, but that he has removed the additional stationary cleaner which comes on the Casablancas long draft, and has only the revolving clearer in the front.

D. C. Anderson reported on the use of long draft and overhead cleaners at a previous connection where the long draft was of the LeBlan-Roth type. He said that after putting in long draft, "our spinners were able to run about the same number of sides; the evenness of the yarn was not as good, but the breaking strength was about 5 pounds better. We also had the overhead cleaners and they were an advantage in keeping the work cleaner, and we had fewer slubs in the work after putting the overhead cleaners in." As to creeling, he said the use of the heavier roving with long draft reduced the creeling frequency about 35 per cent, "and of course the overhead cleaner eliminates what is commonly called wiping of the back sides and thread boards." He and Mr. Scott agreed that the difference in creeling just about balances the additional work of the spinner—that is, Mr. Scott

added, "if the overhead cleaner is used."

Mr. Anderson next submitted inquiries as to cork rolls, whether by their use, "you have to decrease or increase the relative humidity; do you increase or decrease the weight on the front rolls; how often do you buff the rolls; and do the cork rolls give more even yarn and do they give any more breaking strength?"

Further Experiences with Cork Rolls

In attempting to answer these questions, W. J. Jennings, who has an extensive installation of cork rolls on long draft spinning, took up first the question of humidity. He said at about the same time the long draft and cork rolls (and overhead cleaners) were installed, they also revamped the humidifying system, which previously had been not so good so that he couldn't make a fair comparison, but that now he believes he is running about 3 to 5 per cent more relative humidity than previously. As to the weighting of the rolls, "we did put more weight on the front roll, just how much I cannot say."

"We take our rolls on warp out and clean them once a year and the filling rolls twice a year, and when we do this we examine the rolls and take out all rolls that are not up to standard, and the good ones are rebuffed, so we might say we buff the warp once a year and the filling twice a year. This is on 26s warp and 16s filling. Our yarn is just as good as before, if anything just a little bit better. Our breaking strength stays right around standard all of the time. However, we made all of these changes about the same time and we cannot credit either one with what has been done. I do not think that a sheepskin roll would do the work on a long draft system."

"We have had long draft on 30s warp for 4 or 5 years," reported George P. Stone, superintendent, Revolution Cotton Mills, Greensboro, "and on that warp we have had a frame of cork rolls for probably 2 to 2½ years. They seem to hold up well. I do not think we have had a roll to lap up or choke down on that frame; for that reason I liked the cork roll, for other reasons I am not crazy about them. In the last year we have been making some filling yarn on cork rolls, and I realize that our speed—185 r.p.m. on 15s—is pretty high, and we do have lapping on on these cork rolls, but I lay that to the speed. On our warp we lost on breaking strength, and on the filling we gained, with the long draft. As to humidity, we really increased the humidity in the filling mill probably because we did not have enough to start work." Mr. Stone replied to a question from Mr. Rushworth by stating that he does not have a bit more trouble starting up on Monday morning or after other shut-downs on the cork than with leather. He does not run the humidifiers over the week-end, he said, in answer to a question from Mr. Anderson.

Mr. Scott reported on an installation of about 1,000 spindles of cork rolls on frames making 8.75s and 13.75s. He said that the end breakage when running the 8.75s was about 8 per cent higher on the cork, compared with leather; and about 40 per cent higher when running the 13.75s. He attributed this to the fact that in changing from the coarser to the finer number, the roll has been roughed up so it has a tendency to cause more ends down.

"We have had quite a number of cork rolls for 12 to 14 months," reported Mr. Rushworth, "and they have proven satisfactory so far. We did slightly increase the humidity, but not to any great extent. We have had satisfactory results with the rolls on both 10s to 34s warp and 8s to 30s filling. I would not say that on the wide range the breaking strength was very much better; we had some improvement but on the average I would not say that the cork rolls have increased the breaking strength."

E. G. Carter asked for discussion on cork rolls on drawing frames, but no one present furnished an answer.

One-Process Drawing—Again

The time-worn question of running one-process drawing was next brought up by Culver Batson, who explained he was doing so at the request of a friend who had been unable to make it work on his yarn. W. A. Hunt's experience on 10s to 38s checked with that of Mr. Batson's friend; "We did get a little better break, but the evenness was not as good as with two processes." Mr. Rushworth explained that naturally that elimination of one doubling at this point would interefere with the evenness.

W. L. Davis, assistant superintendent, Proximity Mfg. Co., Greensboro, said, "we went from two to one process of drawing, but at the same time we went from old to new drawing, and I could not tell very much difference, but whether it was a result of our putting in new rolls throughout we do not know." He explained that they put in rolls with case-hardened, wider collars and many other improvements."

"I think it depends a great deal on the staple of cotton you are running," said George P. Stone. "I have been working on it for two or three years and have not been able to run one-process yet. If you are running 1-inch cotton you will get better results, but in my opinion when you are running some of our southern cotton that is very irregular, and runs from ½ to ⅞-inch in staple, you are going to get a mighty weak breaking strength in the yarn with one-process. I will say this: We have a Saco-Lowell roving tester and that shows our roving to be evener on the one-process." Mr. Hunt brought out that on combed stock, he got a better evenness with one process of drawing.

G. E. Moore, superintendent, J. M. Odell Mfg. Co., Bynum, N. C., declared that while the cotton run does have something to do with it, he is sure that the biggest item is the speed of the drawing; "if you have an excessive speed of 300 r.p.m. or more, I would rather have one-process running at 200 r.p.m. We have tried one-process and found that our breaking strength went down, but I think that the speed has more to do with the drawing frame than anything else." Mr. Hunt said he had reduced from 315 to 246 r.p.m. in trying one-process.

C. O. Turner asked for experiences with rolls made of synthetic rubber. D. C. Anderson said he

(Continued on page 123)

WARP SIZING, by Paul Seydel (Article 11)

The author gives in this, his eleventh discussion, some worthy comments on the slasher room and its equipment; cooking kettles, saving steam, etc.

HAVING covered in the ten previous installments, the materials used in sizing, Mr. Seydel here turns to the physical equipment of the slasher room and gives practical pointers in connection with the operation of the department in all of its phases . . . . . .

The Slasher Room and Its Equipment

THE EQUIPMENT, location and lay-out of the slasher room should be given great care. Ample space should be provided to avoid over-crowding; particularly is this important for the storage of section and loom beams. There should be ample space back of the slasher for section beam storage and good light in front of the slasher so that the operator may be able to catch quickly any ends out of lease, particularly on pattern work.

There are two kinds of slashers in general use. The cylinder type is most generally used. The hot-air type, which while used quite extensively in Europe, is found only in a few mills in this country. Each of these slashers has its own advantages and disadvantages.

The cylinder type is easier to manipulate, can be operated with less difficulty for cutting laps or cleaning, and has less waste than the hot air slasher. On the other hand, the hot-air slasher is freer from sticking, makes a more nearly round yarn and a better film, due to freedom from baking. The hot-air slasher requires more power due to the number of fans employed in its construction.

In the hot-air slasher the yarn passes through a chamber containing a series of reels, one over the other. The yarn threads back and forth around these reels and passes out the front end to the loom beam. A current of hot air, heated by a bank of steam coils, is forced by a fan in the opposite direction to that in which the yarn travels. A series of fans in the reels keeps up circulation.

Cooking Kettles

The cooking kettles should be designed in size and number to fit the size of the mill. It is advantageous to have cooking kettles of uniform size, in order that the size maker may use the same weights and measures for each kettle. The kettles should be large enough so that the contents of cooked size will last no more than two or three hours. In this way the size in the storage kettle is constantly fortified with fresh size and more uniform results are obtained.

The practice of making enough size at one time to last four or five hours or longer should be avoided as it will make uniform sizing impossible.

The cooking kettle should be of such size as to allow sufficient space at the top for vigorous boiling and stirring. The mistake of over-loading cooking kettles is often made. It is impossible to thoroughly boil the starch without danger of boiling or foaming over with an excessive load. It is an advantage to have the cooking kettle lined with some rust-proof material such as copper, or better still, for the kettle to be made of a rust-proof material such as stainless steel or nickel-clad steel. The outlet should be placed flush with or slightly below the bottom and the kettle leveled to permit complete drainage of the contents.

Agitation of Size in Kettle

The agitators for these kettles are most important, particularly where heavy size is being made. There should be sufficient paddles running at a high enough speed to thoroughly mix the size. Double agitators, revolving in different directions, are most effective. Temperature, agitation, chemicals—all are important factors in their action on starch. Should one kettle have an efficient type of agitation while another has a poor one, the starch will lose more viscosity in the first instance, during the same length of time, than in the second, and results obtained will not be uniform.

A cooking kettle should have a connection close to the outlet that leads to the sewer; also there should be a short length of garden hose for the purpose of thoroughly washing the kettle.

It is of great advantage to have a source of hot water at the cooking kettle for the purpose of bringing each batch to a uniform number of gallons, this being necessitated by variation in the amount of condensed steam incorporated in the different mixes. It is poor practice to run cold water on size because where this water hits the size it reduces the temperature below the congealing point and forms small lumps, which, even though not apparent to the eye, are detrimental to the filming properties of the size mix. Size once congealed and re-heated is never so efficient as size not allowed to go below the congealing point.

The cooking kettle should be equipped with an open end steam coil with uniform perforations around its circumference to admit the steam uniformly around

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The first article in this series, page 43, November, 1935, COTTON, gave a non-technical analysis of the composition of raw cotton; the second, page 44, December, 1935, issue, covered flours and starches; the third, page 55, January, 1936, issue, covered gums and glues; the fourth, page 63, March, 1936, issue, covered fats, lubricants and softeners; the fifth, page 74, April, 1936, issue, covered deliquescents and preservatives; the sixth covering weighting materials, appeared on page 68, May, 1936; the seventh, page 60, June, 1936, covered water; the eighth, page 59, July, 1936, covered the ingredients necessary to make a well sized warp; the ninth, page 51, August, 1936, discussed defects in the warp and their detection; and the tenth, page 69, September, 1936, discussed the subject of analyzing sizing materials. Reprints of these previous articles are available to those who do not have copies, upon request.—THE EDITORS.

the entire circumference of the kettle. This steam source should have a bypass of ¼-inch pipe in the line for the purpose of slowly bringing the contents to a boil.

Storage Kettles

The storage kettle should be large enough to hold the contents of two of the cooking kettles. Since there is no advantage in boiling vigorously in this kettle, more of the total capacity is available for use. The agitation in this kettle should be sufficient only to keep a movement in the size, thereby keeping it uniform throughout, and should not be so fast as to considerably break down the starch.

This kettle should be equipped with a closed coil to obviate the incorporation of water through condensed steam, thereby weakening the size. It should have a direct connection near the outlet to a sewer, a convenient water supply and a short length of hose for washing purposes.

The remarks made in regard to copper lining and rust-proof materials apply to storage as well as cooking kettles.

Piping

All piping in the slasher room size system should be brass or other rust-proof material. It is of prime importance in the design of a system to have a minimum amount of pipe from the kettles to the size boxes and as few right-angle bends as possible. All pipes should be well pitched, to drain thoroughly. The pipes should be of sufficient size so that they will not clog easily. Usually a 2-inch pipe is preferable. The valves in the line should be of the gate-valve type to give a straight, clear opening. At suitable convenient places the size line should connect with the steam and water supply for the purpose of blowing them and washing them free from congealed size, dirt, etc.

Slasher Boxes

The slasher boxes should be lined with stainless or rust-proof metal and equipped with an outlet to the sewer from the bottom so they can be completely drained. It is preferable to have the boxes of such shape that they follow the contour of the rollers with no sharp corners or dead areas. They should be of no more than sufficient size to take care of the space required by the rollers and hold enough size for practical operation, in order to obviate waste and a tendency to have different temperatures in different parts of the box with stagnant corners, causing film and lumps to form. It is very important that the open coil in the size box have uniform perforations and that the line feeding the coil be joined at the center to feed the steam uniformly in both directions. Otherwise, uneven boiling will occur in the box, causing the size in one end to splatter on the yarn while the size in the other tends to cool down.

If the steam supply to the size box is wet, a trap should be placed in the line near the box. A homemade separator consisting of a short length of large pipe tapped at bottom and top about six inches from the end and capped to form a chamber, could be used, the steam flowing in at the bottom and out at the top. The large diameter of the pipe decreases the velocity of the steam and the water particles drop out and are drained off by a valve in the bottom cap.

Since asbestos covering is such a small investment and pays such large dividends, it is a wonder it is not used more universally. The saving in steam alone would soon pay for its installation and the dividends to be derived from more uniform results and better quality are handsome.

Asbestos Covering

All pipes and kettles should be covered with sufficient asbestos to keep the size at uniform temperature. This is particularly important in the case of the storage kettle and the piping; in the case of the storage kettle, because when size is kept overnight it is necessary to keep it above the congealing point to assure best results. Size once congealed and re-heated, even if it has the appearance of continuity to the eye, consists of a quantity of minute lumps that do not have the colloidal, and therefore, filming properties necessary for a good size. In the case of pipes where the radiation surface is great in comparison to the volume of size contained therein, it is important that asbestos be applied to insure the size against congealing.

It is a simple matter to cover a kettle with asbestos. A few strips of wood running vertically from top to bottom of the kettle about 12 inches apart are wired around with baling wire. These strips stand out from the kettle some ¾-inch. Around this, chicken wire of the right height should be tied with baling wire. This forms a suitable lath for the asbestos plaster or cement which is then applied and smoothed down with a trowel to a thickness of 1½ to 2 inches. When dried, this surface should be painted with a good oil paint to protect it, or better still, should be covered with sheeting which can be fastened at the top and bottom by wire or bands and then the sheeting painted, to make a water-proof surface. The whole thing can be applied on an ordinary storage kettle for a very few dollars.

Controls

More and more mills are finding that the right kind of control instruments on their size system is a good investment. Any good control working correctly is a valuable asset. There is, however, a serious danger: Some mill overseers feel after investing in these instruments that they can forget them. Like any piece of machinery, they at times get out of order, and when the overseer has forgotten them and is relying on them to be infallible, considerable bad work may be done before it is caught. However, if the man in charge will use a reasonable amount of care and common sense to see that these instruments are working, they are invaluable and will pay for themselves over a period of time.

These instruments may be merely recording thermometers, which can be watched easily by the overseer, or they may be more elaborate regulating instruments as well, to keep temperatures constant, or a combination of recording and regulating. With controls on the drying cylinder of the slasher, over-dry-

ing may be prevented, the proper amount of moisture left in the yarn, and greater freedom from mildew secured by preventing excessive moisture. By their use a different temperature can be carried on each cylinder, which is of advantage in drying the sized yarn.

Circulating System

The old method in favor before the development of the constant level system was the circulating system. In this system the size was circulated from the kettle to the size box and through an overflow back to the kettle. By maintaining this overflow at the proper height the level in the size box was constant at all times. Besides this advantage, it was claimed the size was kept uniform by mixing the size from the storage kettle with that of the size box.

The reason that the constant level system is rapidly replacing the circulating system is due to the fact that size is broken down by the mechanical action of stirring and friction which in the case of the circulating system is very great, the size having to pass continuously through a pump, pipes and a kettle, with the resultant weakening due to mechanical breakdown. Where colored work is run in conjunction with white work, it is impossible to circulate the size without tinting the white yarn.

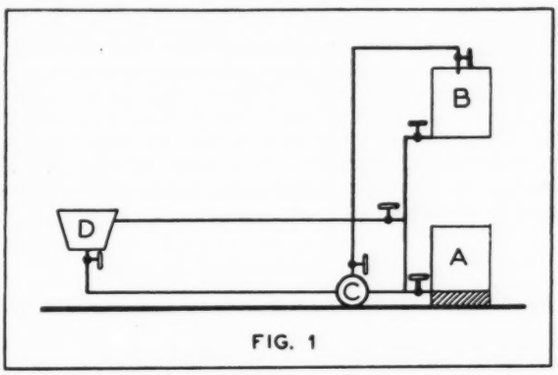


FIG. 1

For those interested in the different types of circulating systems in use, the following diagrams and explanations are given.

In designing circulating systems, it is of advantage to have outlets to the sewer at strategic points so that the entire system may be thoroughly drained when desired. Tees with steam connections should be placed at convenient and proper points to blow out the pipes so as to free them of congealed size in case the system becomes clogged.

It is also advantageous to be able to drain thoroughly the system to the sewer without having to run the size through the size box. This permits washing the system out even when the slasher is running, also it is unnecessary to run in the box, materials that may be difficult to clean out of it. The whole system of pipes should be covered with asbestos as well as the size kettle and storage kettle, to minimize radiation and keep the size warm with the least possible consumption of steam. It must be remembered that excessive motion breaks up the starch too much, reducing useful viscosity.

Fig. 1 shows the position of the mixing kettle *A*, and lines permitting of pumping the size into the storage kettle *B* through the pump *C*, which may also be used for circulating the size from the storage kettle *B* in to the size box *D* and back to the size storage kettle *B* through the pump *C*. In this installation, it is important to shut off the valve between the storage kettle and size box before starting to pump from the make-up kettle to the size box, to obviate overflowing. This danger can best be obviated by using two pumps, or by installing the system as sketched in Fig. 2.

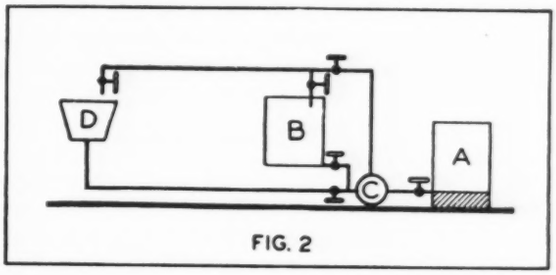


FIG. 2

In this installation, Fig. 2, the storage kettle *B* is on the same floor or level as the make-up kettle *A*. When the size is finished, the connection between the pump and the size box is cut off and the batch is pumped through the pump *C* into the storage kettle *B* by closing the proper valves. The same pump may be used to circulate from the storage tank into the size trough and back to the storage kettle.

These sketches do not attempt to show steam lines and valves needed for blowing out the outlets to the sewer for cleaning up the systems. These should be put in convenient places, depending on circumstances.

In Fig. 3 is shown an installation where the size circulates in the piping to keep it from congealing there, without including the size trough. There is one outlet conveniently located over the size box *D* to permit the control of size feeding. The cut-off valve *E* is located close to the pipe where the size circulates to avoid clogging by congealed size.

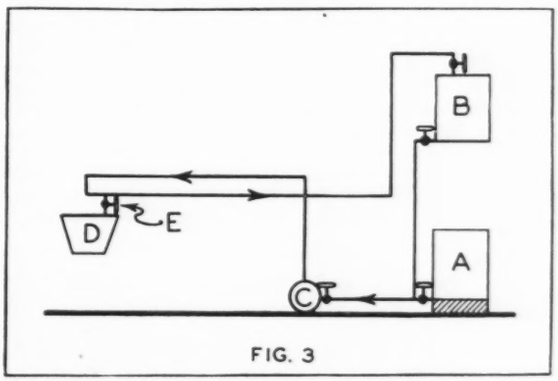


FIG. 3

Constant Level Control

One of the best controls on a slasher is the constant level control used on the size box, designed to keep the level of the size in the box at the same point. There are a number of constant level devices on the market but the most desirable are those keeping a

continuous small stream of size going into the box at all times, increasing the size of the stream when more size is needed and decreasing it conversely. This is to be preferred rather than a control which operates intermittently, letting in a volume of size and cutting off completely, because a steady flow from the pipe into the size box induces a steady flow in the pipes, which tends to keep the size in them from congealing. These constant level devices are actuated according to different principles.

Size Level Thermal Control

One, using a thermal control, operates electrically a diaphragm valve. An element is screwed in the side of the size box at the level at which it is desired to keep the size. As soon as this becomes uncovered, the air cools it causing the mechanism of the valve to work. When covered it is heated and closes the valve.

The float valve type works on an old principle. A float is connected by an arm to a quick opening valve. When the size goes down, the float goes down, opening the valve and allowing more size to enter. As the size rises the float rises and the quick opening valve is closed.

(The next installment, which will conclude this series on "Warp Sizing" by Mr. Seydel, will continue his discussion of the equipment of a slasher room.—The Editor.)

Corrections for Article 10 of "Warp Sizing" published in September "COTTON"

THERE were a number of errors in several paragraphs of Article 10 of "Warp Sizing", by Paul Seydel, in the September issue of COTTON. These occurred in that portion of the article appearing in the right-hand column of page 71 of the September issue. The third paragraph in that column should have been eliminated entirely and in the paragraphs immediately following were several errors. In the interest of accuracy, we present here the paragraphs involved in their correct form, suggesting that readers make note of the changes. The words in heavy type here represent the changes:

Boil sample in water, rinse well again, then put in oven for 8 **hours or overnight** at 105 degrees C. Loss is moisture, size, etc. (Item "etc." is natural waxes, natural mineral matter, and dirt.)

Calculations: Report only moisture on raw yarn. Report moisture, size and cellulose (by difference) on sized yarn and cloth samples.

Raw Yarn: **Per cent** moisture is **moisture** loss multiplied by 100, **divided by** weight of sample. Item "etc." is **total** loss multiplied by 100, **divided by** weight of sample, **and then subtract** moisture.

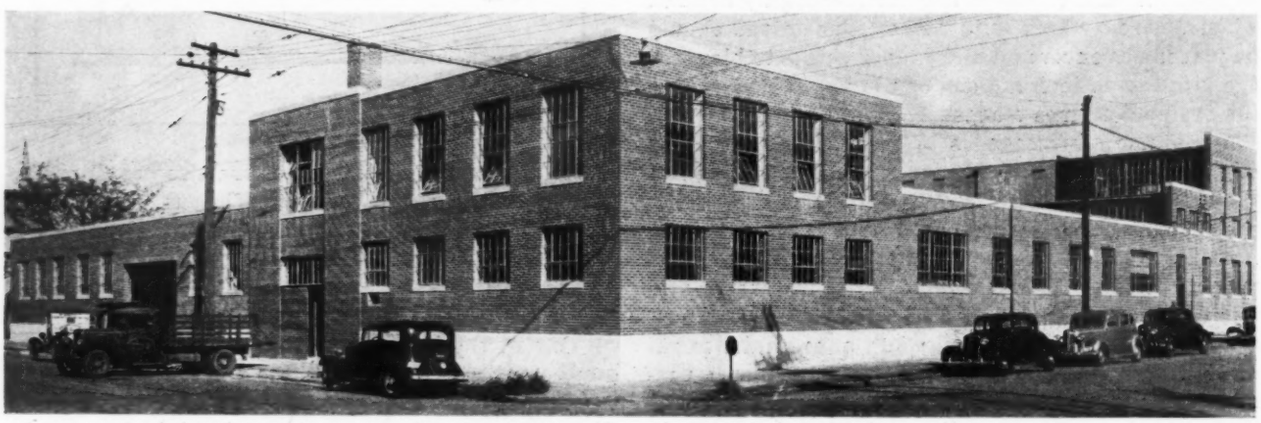
Sized Yarn and Cloth: **Figure** moisture same as raw yarn. "Total" is item "etc." plus size (figured same as item "etc." for raw yarn). **To find** "size" **divide** item "etc." found in raw yarn **by the** per cent cellulose **in the raw yarn,** then subtract from total **found in the sized yarn or cloth.**

New Warehouse and Plant of Burkart-Schier Completed in Chattanooga

BURKART-SCHIER Chemical Company, Chattanooga, Tenn., manufacturers of sulphonated oils, softeners and specialties for the textile trade, and jobbers of textile and industrial chemicals, have recently completed a new, modern plant, a view of which is shown herewith. It is a two-story structure, of mill type brick and steel construction, with concrete floor, and contains 25,000 square feet of new floor space. It is located at 13th and Chestnut Streets in Chattanooga, 181 feet on 13th and 150 feet on Chestnut street. A part of the new building, which is equipped with Grinnell sprinklers, will be used for chemical storage, and a part as a sulphonating plant. The new plant is connected to the old plant of the company by covered runways and loading platforms. The two buildings occupy the block between 12th and 13th streets.

A modern plant control laboratory is located in the manufacturing division, and experimental and testing laboratories are on the second floor. Both laboratories are equipped with Monel metal and stainless steel equipment, and new nickel and stainless steel tanks have been installed in the manufacturing division. The sulphonated oil plant is most modern. The old plant will be used for acid and heavy chemical storage. Sears and Shepherd, Chattanooga, were the architects on the expansion program.

The general offices of the company are located on the second floor of the new building. The officers are: C. A. Schier, president; W. A. Bentel, secretary; A. S. Burkart, treasurer; William J. Kelly, Jr., sales manager, and, in the manufacturing division, E. L. Fletcher and Andrew J. Kelly, chemists.



Part of this building will be used for chemical storage and part as a sulphonating plant.

Fisher Heads National Association

ELECTION of Russell T. Fisher as president, and an interesting proposal by Claudius T. Murchison, head of The Cotton-Textile Institute, for an industry-wide stabilization agency, were among the features of the annual convention of the National Association of Cotton Manufacturers, held at the Copley-Plaza Hotel, Boston, Mass., on Wednesday, October 7.

Mr. Fisher, who has been secretary-treasurer of the association for a number of years, succeeds Frank I. Neild, president of the Neild Mfg. Corporation, of New Bedford. He is the first head of the association not to come from the active manufacturing executive ranks of the membership, but, as the association explained, the change of policy involved in his selection was "brought about by the fact that in recent years the demands of the office have been such as to warrant the full-time efforts of the incumbent." A successor to Mr. Fisher as secretary-treasurer will be selected by the board of government.

W. F. Staples, treasurer of the Ponemah Mills, Taftville, Conn., and C. F. Broughton, treasurer of the Wamsutta Mills, New Bedford, Mass., were made vice-presidents of the association.

Proposed Stabilization Corporation

In his address at the annual banquet on Wednesday evening, Dr. Murchison proposed the creation by the cotton-textile industry of an industry-wide corporation to act as a stabilizing agency in marketing emergencies as well as to facilitate the orderly liquidation of obsolete equipment and to provide a control, by leasing, over excessive operation of marginal machinery. He revealed plans for an exhaustive study by the Institute of the industry's merchandising and excess equipment problems.

Reviewing the problems with which the industry has dealt during the last year and those it must meet in the immediate future, Dr. Murchison stressed particularly the voluntary maintenance of wage and hour standards by an overwhelming proportion of the mills. These standards, he pointed out, should be "the main elements of economic and social security" and, he added, "without their recognition, in practice as well as in principle, lasting stability and enduring prosperity are impossible of attainment."

"It is my belief, however," said Dr. Murchison, "that the moral considerations upon which we have depended for the maintenance of these standards since the dissolution of the code must be buttressed by new and sturdy supports of a more tangible nature. Specifically, they are an improvement in the distribution methods of the industry and a more effective dealing with the problem of excess equipment. The industry has long been aware of the weakness of its distribution methods from the standpoint of price stability but progress toward improvement has been slow.

"There are many solutions which are theoretically possible. Some of them are conditioned upon combination and integration throughout the industry and hence can be realized only after a long lapse of time. Others who assume extremely large distributing units would be able to stabilize the market through sheer financial power or virtual monopoly of certain lines. These, of course, cannot be realized because of the anti-trust laws. In most cases proposed remedies take for granted a fundamental conflict between mills and selling agents and between mills and buyers. Besides, a fundamental conflict is utterly fallacious and proves a deterrent rather than an aid in finding any ultimate solution of the problem.

Russell T. Fisher

"It is my belief that the industry can establish what may be termed a stabilization corporation which will have the support and co-operation of mills and selling houses alike and whose business activities would not be competitive in character but designed to support the market and provide it with a steadying hand in appropriate places and at strategic times. Such an institution might also co-operate in the private efforts now being made to hasten the retirement of obsolete machinery by final liquidation and by holding in check the excessive operation of marginal machinery through the use of the well-known leasing system which has attracted much attention both in England and the United States, and has been definitely recommended for further use by the Cabinet Committee in its recent report on the textile industry. To my mind, efforts to regulate market activities, through private means, must be affiliated with efforts to minimize, through legitimate means, the disturbing effects of excessive productive equipment. Much research work will be required before the final details of this stabilization plan can be drawn up but to this task the Institute has definitely set itself and will, during the forthcoming months, draw expert aid and counsel from every available source."

Another feature of the Boston meeting included a technical session, at which Alfred Pate, treasurer, Charlton Mills, discussed warp preparation and weaving; and Charles H. Forsaith, superintendent, Jackson Mills, Nashua Mfg. Co., spoke on reducing insurance rates through accident prevention. Reports of committees and officers, and a business session including discussions of social security legislation and the Walsh-Healey Bill and the Robinson-Patman Act, by government representatives, concluded the program.

Resolutions urged revision of the undivided profits tax, opposed third shift operation, and asked for further relief from Japanese imports.

Making a Machinery Survey

The third installment of a discussion telling how and why periodic surveys of equipment should be made; and what to do about it

Part Three—Continued from September Issue

By Richard S. Pope

THIS is the third and next to last installment of a discussion on the why and how of periodic surveys of mill equipment. The author not only tells how to make a survey, but gives illustrations of how to use the information profitably after it is secured.

This discussion is confined to the carding department, but the principles and methods involved are applicable to the mill generally..

Copies of the two previous installments will be furnished upon request.

Drawing

The function of drawing frames is to draw several slivers into one, parallel the fibers, and re-form a web into a sliver which is coiled into a can. These frames are generally considered to be simple and are usually the most abused and neglected machinery in the mill. In a number of card rooms the drawing is the neck of the bottle because there is not enough equipment on hand to balance the cards if the rolls are run at a conservative speed. There might be a difference of opinion as to what would be considered conservative speed; no doubt the question is looked upon as being more what the machine will stand in the way of speed rather than what the stock will stand; little thought is evidently given to static conditions or what happens when a bulk of tangled fibers are separated too rapidly. By neglect is meant inattention to cleanliness, scouring of rolls, condition of rolls, setting of rolls and general upkeep.

Drawing frames have either metallic, leather or cork rolls and either electrical or mechanical stop motions; it is a matter of opinion which is better over a long period, but an example for checking on a survey a form will be given for metallic rolls and mechanical stop motions, as follows:

Frame number, weight per yard delivered, total weight fed, draft, draft gear, tension gear, combination foot-end gears, back lash in head-end gearing, (also) foot-end gearing, turn tables, coilers, wear on roll necks, wear on roll stands, diameter of rolls 1, 2, 3, 4, space between rolls (in 32nds of an inch), weight on top rolls of deliveries 1, 2, 3, 4, 5, 6, trumpet gauge at each delivery, trumpet setting to calender roll at each delivery, condition of calender roll, condition of calender roll bearings, distance from coiler plate to turn table (right and left end of each head) drawing rolls sprung, condition of clearer cloth, diameter of collars on top rolls, diameter of collars on bottom rolls, spoons not working, etc.

No explanation is necessary on how to check and fill in some of the desired information but the reason for checking some points might not be clear and it might be helpful to make some comment:

Back lash in gearing is indicative of wear on the gears, bearings and studs, and is likely to cause "cut" drawing any time the head is started, which is more frequent than on any other type of card room machinery. The amount of wear should be rated according to the best judgment of the observer.

Gauging the Roll Settings

The wear on the roll necks and stands and the space between the rolls are closely connected because it is often found that the screws holding the stands in place have come loose and allowed the roll to be sprung or to have an eccentric motion, thereby causing excess wear on the neck and stands as well as injury to the stock. By knowing the diameters of all the rolls and the space between each line, the settings can be determined by adding the space between the rolls to half the diameters of any two rolls. When using leaf gauges, each leaf of which is 1/32-inch thick, and it is found possible to insert seven leaves between the front roll and second roll, the diameters being 1⅜-inch and 1⅛-inch respectively, then the setting over the staple would be 1⅜ plus 1⅛ divided by 2 equaling 1¼ to which is added 7/32, giving 1 15/32 inches as the setting. If the 1 15/32-inch setting is the standard, then 7/32-inch is the proper space between these rolls and the actual variation at each delivery or stand should be noted as it is actually found and rated in proportion to those that are correct and to those that are not set to standard. Any setting found to be more than 2/32-inch from standard should be re-set to avoid further wear on the necks and stands.

The weights on the top rolls should be checked to see that each line of rolls and each delivery is weighted the same; unequal weights will cause unequal meshing of the flutes if the collars are worn, thereby causing unequal tension between the front roll and the calender roll. Some drawing frames are equipped with weights that can be changed to compensate for variations in the sliver being fed and other conditions, but as the conditions causing the variations are likely to change with each creeling of the cans it is necessary to allow only the section man to change these weights.

The gauge of the trumpets is determined with the regular trumpet gauge and the condition at this point should be rated in the proportion of those being standard and those that are 2/100-inch or more from standard. Trumpet settings to calender rolls can be determined by a gauge made for the purpose; this gauge is graduated to give the proper distance between the end of the trumpet and the calender roll

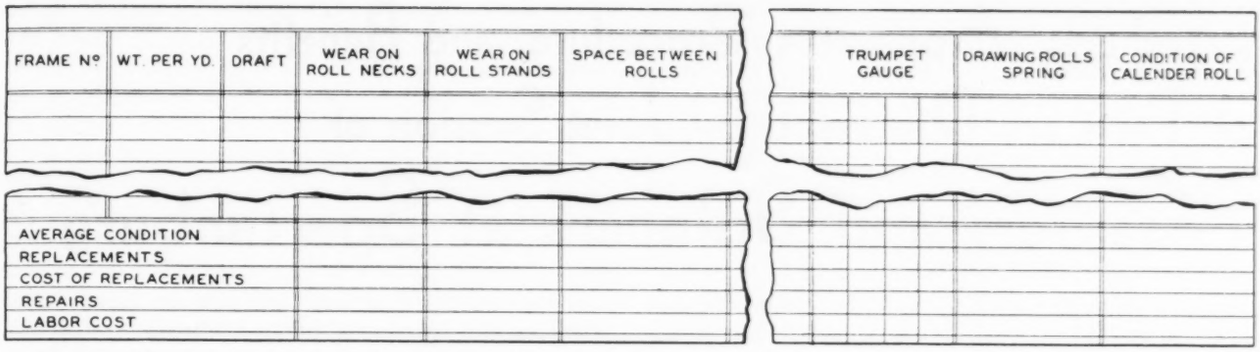


Fig. 4. Showing a portion of the suggested form for use in making a thorough survey of the drawing frame. (See the August and September instal'ments for previous forms.)

for several different lengths of staple. Not every frame is so made that it is possible to change the trumpet setting and in such an instance it might be a good idea to put in the longest trumpet possible to avoid a possible plucking action between the trumpet and the calender roll.

The condition of the calender roll is likely to be found good unless some one has prick-punched it to make the tension even or perhaps in a case where the roll is in one piece, it might be possible that the roll has become sprung. The condition of the calender roll bearings should be noted and rated accordingly.

Important Factors

The distance from the coiler plate to the turn table is not likely to vary from the original position but in case the floor has sunken or the frames have been moved, it is better to be sure that this measurement is the same on every head, otherwise a variation in the distance will give a corresponding variation in amount of sliver in the cans which will cause a difference in the run out at the next process resulting in more piecings and waste. Sprung rolls should be looked for by taking all the top rolls out and allowing the head to run. If any are found they should be taken out and straightened before any stock is put through and then rated in proportion to those that are not sprung.

The diameter of the collars on the top and bottom rolls should be measured with a micrometer because ordinary measurement with calipers and rule will not give the true condition of wear. There might be some contention that the collars are hardened and will not wear enough to make any difference but measurements have been made showing a difference of 14/1000-inch in the collars on the same head. Everyone connected with a card room knows the trouble that is experienced in trying to maintain uniform tensions on every end; the reason for this may be understood when it is realized that the meshing of the top and bottom rolls gives more delivery than ordinary rolls of the same diameter; this meshing varies with the thickness of the stock going through, the amount of tension on the sliver at the back which varies from the full to empty can, variations in the weights on the top rolls and the wear on the collars. When a frame is new the collars will no doubt caliper to one or two thousandths, but as said before they do wear off and the more they wear the deeper they mesh and the deeper the mesh the more is delivered to the calender roll. Furthermore, the drafting is upset because the wear on the collars of the second roll is not in proportion to the wear on the first roll, consequently, the first roll is drawing the stock away from the second roll out of proportion to the gearing and the result is a lighter sliver.

The amount the flutes mesh can be found by adding the diameters of the top and bottom fluted section, from which is subtracted the total of the top and bottom diameters of the collars, and this difference is divided by 2, which gives the amount of overlap or mesh. On a certain make of frame the amount of mesh is approximately 44/1000-inch, which on a 32 pitch roll gives about 33 per cent more delivery than a plain roll of equal diameter. If 44/1000-inch mesh gives 33 per cent excess delivery it is reasonable to figure that each 1/1000-inch wear on the collars will give 33/44 or 3/4 per cent more delivery. If this is true then in the instance where the variation was 14/1000-inch there must have been a variation of 10 per cent in the delivery and the draft between the first and second roll. The usual remedy for such a condition, as in this case, is for some one to prick-punch the collars which increases the diameter of the collars until the tension is equalized; this is a bad practice and should be discouraged, because if the rolls have reached a condition that it is necessary to resort to such a practice, it is time to put in new rolls or have the old rolls sent to certain shops that can re-build the collars and do a re-fluting job. It might be possible for some mills to do a successful job in their own shop by putting the rolls in a lathe and grinding them with a post grinder. Generally it will be found that only the first two rolls are at fault; the cost is not high and is well worth while. It would not be practical to measure all the collars on every head but enough should be measured to get a representative condition, from which the status at this point may be rated.

Spoons not working, or rather not sufficiently sensitive to come up soon enough to stop the head with at least four inches of tail on the sliver behind the back roll, should be filed smooth where they set on the knife bar, also the bar should be filed so that

(Continued on page 87)

Methods, Apparatus, Procedure, and Benefits of Tests are Discussed by Joint Session of Carders and Spinners at Spartanburg

THE CARDERS' DIVISION and the South Carolina Spinners' Division of the Southern Textile Association met jointly Saturday morning, October 10, at the Franklin Hotel, Spartanburg, S. C. The subject of both the carders and the spinners was methods, apparatus, and benefits of tests conducted in the mill, and procedures followed when results of the test were found. Although the weather was inclement, about 75 mill men were present. J. O. Corn, superintendent, Pacific Mills, Columbia, S. C., led the round-table discussions on carding and Joe C. Cobb, Chiquola Manufacturing Company, Honea Path, S. C., conducted the meeting pertaining to spinning. After

J. O. Corn, left, who led the carding discussion, and Joe C. Cobb, right, who conducted the one on spinning.

a few brief announcements Mr. Corn began the meeting by explaining the general purpose.

He said that the question of testing and how mill men go about it would be considered. "When you get a new machine today, the management asks you what results you are getting from it. What we want to discuss is the method used in making tests and to see if we can't develop some method of testing so that all of us will be testing alike. In judging the character of cotton and its advantages and disadvantages we always made a test; how do you determine whether you have any advantages or disadvantages in the grade? How do you go about determining your results on the grade of cotton? If you were going to make a test on the pickers, how would you go about it?"

Carding

Walter Danhoff, Chiquola Manufacturing Company, Honea Path, said that the first thing would be to determine the amount of waste. When asked for his method of doing this, Mr. Danhoff replied that he weighs the amount of waste, motes and fly, and compares it with other cotton run previously. The chairman injected the question, "Say you are using Strict Middling and change to Strict Ordinary, would you make any adjustments on your machine?" Mr. Danhoff still had the floor and replied that when the grade of cotton changed to is known, that then he knows just what adjustments need to be made on the machine. The adjustments are made on the grid bars and in the speed of the beaters.

Joe C. Cobb, also of Chiquola Manufacturing Company, gave a method of testing for the amount of waste taken out at the pickers: "If you know you are going to change your grade of cotton, clean out your mote boxes and run one type of cotton through the machine; then clean the machine again and run the other cotton. Have the same settings both times and then see what the difference in weight of waste is; later on if you want to test further, you can change the settings on the grid bars to see the difference in the waste." Mr. Corn summed up this first question by saying, "If you want to test for waste, the best way is to make the first test without changing the settings and then change them later on if you want to."

Beater Speeds

Then the chairman asked the question, "If you are running a beater speed of 1,000 r.p.m. and someone says that 1,500 is the best speed, how would you make a test to ascertain which is the most advantageous speed to run?" Are you running the same beater speed now as you ran 15 years ago?" Mr. Fryer reported that he has run beater speeds from 900 to 1,500 but that 10 years ago the speeds were a lot higher than at the present and that the best speed he finds on the Kirschner beater, using regular two-process picking, is 900 r.p.m. but that on the single-process picking the speeds go higher. Mr. Fryer said that he prefers a speed range of from 900 r.p.m. to 1,300 r.p.m. on his beaters but that he thinks a lower speed should be run on new machinery. The chairman wanted to know if there had been any tests made to establish beater speeds.

W. E. Hammond, superintendent, Balfour (N. C.) Mills, maintained that, "If a man doesn't watch his cotton he will get into some serious trouble. I go to my opening room every day and pull the cotton and tell what it is. If a lot of cotton is off in staple, I try to catch it before it gets into the machine. Mr. Hammond further answered that the beater speeds are lower now than before; the old speeds were about 1,400 r.p.m. and now the beaters are run at 1,000 r.p.m. The Kirschner beater does not break the fiber and the blade beater does. The speeds in his mill are

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Reported by John C. Fonville

lower because he believes that it is less damaging to the fiber. "I try to clean my cotton whether I take out 8 per cent or 15 per cent of waste; that is what we are supposed to do. The percentage of waste will be changed if the grade is changed."

J. L. Brannan, Mooresville (N. C.) Cotton Mill, gave an interesting report of a test that he had made: On 15/16-inch Middling cotton, this year's crop and last year's crop, running 1,450 r.p.m. on the two-blade beater and 1,000 r.p.m. on the Kirschner beater, making a lap in 10 minutes, he found that the breaking strength on 22s yarn made from the stock processed by these two methods to be 2½ to 2¾ pounds lower on the blade beater than on the Kirschner beater. Mr. Brannan's method of testing at the pickers is to take the same speed of beater, change no settings on the machine, put the cotton through the machine, weigh the waste and secure the percentage of waste from the amount of cotton put in against the amount of waste removed. He then added that the card comes into the picture; the manner in which the mote knives are set, the screen, the licker-in, back and front plates, and flats all affect the percentage of waste removed. Also, more waste is removed from different lots of cotton which come into the mill as the same grades.

Testing for Evenness

The next question Mr. Corn asked was, "How do you test for evenness?" Mr. Brannon of Mooresville reported that he has tested both the single-process and three-process pickers in his plant and finds that the three-process picking gives a breaking strength of from 2 to 4 pounds more than the single-process picking but that the evenness is just about the same on both. This is making a 14-ounce lap. The variation in evenness was determined by laying the laps on the floor and cutting them up yard for yard. W. E. Campbell, Republic Cotton Mills, Great Falls, S. C., stated that it has been his experience that the single-process picking, when changed over from the three-process, is not as even when compared with the three-process picking because the feed roll is speeded and the full effect of the beating is not received. He had to speed his Kirschner beater to help the appearance of his laps; his laps did not show up inch for inch in evenness very well on the one-process picking as compared with the three-process picking. L. N. Crocker, Riverdale Mills, Enoree, S. C., introduced the method of rolling the lap off in front of a light to ascertain the evenness of it and then to weigh it yard by yard to get the weight. Mr. Brannan replied, "I do that too." He then told of his method of running the beaters a good speed to get proper results; "just as much speed as you can get without curling the stock". Mr. Clark announced that he has seen a place in a picker room fixed so that the lap may be hung from the ceiling in front of a window and inspected for evenness. B. W. Bingham, Brookside Mills, Knoxville, Tenn., a visitor from the Tennessee Division of the Southern Textile Association, considered that when the laps are handled and lowered from the ceiling that there is a certain amount of stretch put into them. He told of a device he had made for his mill whereby he took the rollers off of a comber and made a frame in which to lay the lap so that it could unwind or unroll without having any stretch in it. A light is arranged under this frame so that the lap may be inspected for evenness as it passes over the rollers.

Mr. Hammond introduced a question that all mill men are interested in when he said, "What do you do to remedy the unevenness when it is found?" This question was not answered.

Mr. Crocker of Enoree then told of having cut the speeds on his back blade beater from 1,536 to 1,400 r.p.m., and on his front Kirschner beater from 1,185 to 1,000 r.p.m. endeavoring to reduce holes in the laps. The laps showed up better afterward, he said. Also he brought out the point that the draft from the fan causes much unevenness.

Device to Relieve Tension

J. A. Morrell, Greer Plant, Victor-Monaghan Company, Greer, S. C., told of having the twin-style pickers where the variation was too much and where he was losing 7 and 8 per cent of his laps due to unevenness. He applied a patented device which relieves the tension on the lap and found that he reduced his per-

Mr. Bingham

Mr. Hammond

centage of laps lost to about one per cent. Also the yard per yard and the inch per inch variation were all right after the device was applied.

Mr. Bingham asked, "What harm is done to cotton when the Kirschner beater is run too fast or too slow?" Mr. Brannan averred that when the beater is not at the proper speed it "hooks" the cotton, causes it to make neppy yarn, makes the carding harder, but that it does not injure the stock as much as a blade beater run at the wrong speed.

The next query was, "What method is used for taking care of the weight of the laps in wet weather?" The questioner meant the method in which the weight of the laps is compensated for in cotton when the air is more humid. The device used by many mills for this compensation was explained by Mr. Hammond. Mr. Putman, Beaumont Manufacturing Company, Spartanburg, described his method of testing the laps for weight and evenness by weighing one-third of a yard on each side of the lap to see if the lap was even for the entire width. Mr. Hammond added to this method the suggestion that the last batch of cotton that comes through the picker is heavy.

The chairman brought up the next question which was, "What methods do you use in testing drawing for evenness?" Mr. Putman weighs his drawing and Mr. Turner weighs his twice a day. "We creel a whole

frame at a time", he added, "and I take a can from under each delivery, cut it off yard by yard, weigh each yard and then weigh all of the yards together. It is a good idea to lay it on the table and cut it with scissors, having the measuring lines marked on the table. I think the best way is to weigh the sliver foot by foot."

Sliver Testing Machine

The next question pertained to the sliver testing machine. Mr. Danhoff replied that he had used the sliver testing machine and that with it he was able to determine the variation in the machines, to get a picture of what was happening in his card room and that by its use he knew which machines to correct. Mr. Corn stated that, "We have done some testing with the sliver tester. It does show that we have variation as high as 50 per cent. This variation is inch by inch and it is not yard by yard. You will find

Mr. Lockman

Mr. Brannan

that there is considerable difference in variation from one delivery to the next; some deliveries are worse than others." Mr. Crocker thought that the variation from delivery to delivery is due to the weather conditions. W. E. Hammond brought out the point that the variation is relative to the condition of the metallic rolls, which wear, and that by swapping the rolls in the machines that the variation can often be corrected. Mr. Crocker further added that sometimes a new set of metallic rolls will cause variation and that the trumpet size of the deliveries may be different; also that when the rolls wear down the variation is evident. The chairman too considered that the size of the trumpets will make bad work show on the drawing frames. A discussion of trumpets followed; one man changes his trumpets every 2½ years; another uses an 18-degree taper on a 60-grain sliver.

The men having the sliver testing machine consider it a good investment. Mr. Brannan told of having a machine test made for evenness on both cork and metallic top rolls and found that the variation on the cork rolls was 20.3 per cent and on the metallic rolls 50.7 per cent. Mr. Crocker said, "It is a good idea to check the roll settings. We have different cotton and have different settings for each. One day I thought I had the right settings but the drawing did not look well and I kept tinkering with the roll settings until it looked all right. The right settings have to be determined by actual experience; some cotton has fibers ranging from ⅞-inch to 1¼-inch and it is hard to strike a happy medium for the roll settings."

Roving Testers

The discussion turned to roving testers and the chairman exhibited a chart from the roving tester. The only trouble, he explained, is that after the graph is made he doesn't know how to correct any defect shown on the graph. He also told of making a test with the roll settings just as close as possible and just as wide as possible and found that the wider setting gave a lower breaking strength. He added that it is the twist multiple that affects the strength of the roving. When asked by Joe C. Cobb if the cones had been changed, he replied that the cones had been changed but that just as good a graph on the tester had been secured before as after changing; a little more uniform tension was evident with the change of cones, however. Mr. Brannan thought that a more even delivery is attained with cork rolls than with metallic top rolls on drawing. W. E. Campbell reported that he benefited from his tester by getting the proper tension, and that any little pieces of dirt or unclean places would show in the graph.

This was the last question put on carding and the chairman asked that those present make tests and come prepared at the next meeting to discuss them and to tell what they did to correct the faults that the tests disclosed.

Spinning

The meeting was turned over to Joe C. Cobb, Chiquola Manufacturing Company, Honea Path, S. C., who led discussion on the prepared questionnaire on spinning. Mr. Cobb pointed out that the greatest fault of mill men is that they make tests but fail to follow them up to correct the defects that they discover. "If we don't learn how to make these tests and how to follow them through, we are going to get behind."

The first question asked for a list of testing equipment used in the mill laboratory. N. G. Hardie, superintendent, Inman (S. C.) Mills, named the individual strand tester, oven, and skein breaker as equipment in his testing laboratory. "We get the individual strand tested and the percentage of stretch on our machine. Some times the yarn that breaks strongest in the test does not weave best." Mr. Corn said that at his mill a conditioning room is in use for sizing the yarn, an oven for securing the moisture content, and a machine for getting the breaking strength. "We hope to add to our testing laboratory," he said.

Smith Crow, superintendent, Drayton Mills, Spartanburg, answered that at his mill there is the oven, skein breaker, single strand tester which is used mostly on rayon, and the seriplane which is used to check the evenness of the yarn. Mr. Crow explained that the seriplane may be set to put any number of lays per inch on the card and was heartily in favor of its use in mills. Mr. Hammond also considered the seriplane a good method of testing and told of a homemade one that he uses. John Klinck, representative of Hygrolit, Incorporated, described the seriplane also and told of a drum upon which the yarn may be wound but that the disadvantage of it is that the yarn must be cut from the drum.

The second question asked for the frequency of tests and was answered by T. B. Hammond, Pacific Mill, Columbia, S. C., who said that he tests the ends down on the warp one week and on the filling the next week. Mr. Hardie reported that he runs tests at any time on ends down in the spinning room but that each test is a multiple of 4 hours. The chairman asked, "Why do we make ends-down test in the spinning room and what do we do with it when we get it?" Mr. Hammond answered that he kept all of his records and attempted to remedy the faults. Mr. Corn spoke for a minute bringing out that the ends-down test is worth little to a mill man unless the causes of the ends down are classified. To just know the number of ends down per 1,000 spindle hours is of little value. Displaying a form that he uses for his ends-down test, Mr. Cobb explained that the purpose of the test should not be merely to determine the number of ends down per 1,000 spindle hours but to ascertain the real reason that the ends come down.

"What is your system for making an ends-down test? Who makes this test for you? Why?" was the third question on the prepared list. T. B. Hammond of the Pacific Mill has a girl make all the tests; she has been taught the proper procedure for the work; Mr. Hammond further said that he believed that one operative should do the testing of the ends down at all times so that the results would be comparable. "We have one man who does all of our testing," said Mr. Hardie, "that is all that he does; in fact, he checks something every day. When he is checking the ends-down test he is put with a spinner and stays with her all day, checking the number of ends down and then classifying them; the unclassified ends down usually range to about 48 per cent." At this point a member of the association asked for the number of ends down per 1,000 spindle hours. Mr. Hammond of Pacific Mill gave 35 ends down per 1,000 spindle hours on 29½s and Mr. Hardie gave from 25 to 50 ends down per 1,000 spindle hours on 30s, but added that the grade and staple of the cotton must be considered in comparing tests.

Roll Settings

The fourth question was "How do you determine the best roll settings, both top rolls and steel rolls, for the length of staple cotton you are running?" J. S. Lockman, Monarch Mills, Lockhart, S. C., offered, "We know about what we have been running and when we begin to use shorter cotton we close our rolls and when we use longer staple we open them." W. E. Hammond stated that he runs his rolls just as close as he can get them because it gives better spinning.

The fifth question dealt with the amount of twist that the spinner thinks is advisable to run in the card room so that it will be conducive to good running work in the spinning room. "I never could see why spinners want more twist in their roving because it all has to come out. Since long draft has been in use, we all have a lower twist multiple. Now it is about 1.19 whereas before it was around 1.40 on the roving. The lower twisted roving is better because it is easier to be drawn out," said Mr. Crocker. Mr. Lockman maintained that all the twist a spinner wants is enough to pull the roving to the drafting rolls and that if the frame is in good condition so that there is no friction, the roving may contain less twist. The spinner just wants the roving to get to the rolls without stretch. This point was verified by Mr. Hammond of Balfour, N. C.

Why More Twist?

The chairman asked why it is that when the spinning is running all right that the spinner will ask for more twist; can the spinning frame run with a faster front roll speed? The chairman, who is a spinner, was jokingly asked by several if he had ever done this, and he admitted that he had. N. G. Hardie suggested that if a man could run one frame with one twist multiple and another frame with a different twist multiple that he could ascertain which would be the best.

Some times it is not a question of twist but is the tension in the card room that gives trouble; approximately 75 per cent of the bad work in the spinning comes from bad tension in the card room, was the theory propounded by Mr. Crocker. J. H. Nichols, Monarch and Ottaray plant, Union, S. C., said, "I believe in plenty of twist in the roving but there is such a thing as too much twist; I had to take out some the other day." Going into the breaking back of ends, he continued, "Most breaking back is done on the small part of the bobbin, after the frame is doffed, and is caused by the roving having been stretched immediately after the doff."

Mr. Nichols

Mr. Hardie

Next discussed was the subject of who does the weighing of the roving and yarn in the card and spinning rooms. Some of the men considered that the carder should do his own sizing and the spinner his, while others thought it best to have one man do the weighing in both departments.

The proper method of arriving at the amount of twist was thought to start at one extreme and test running with different twist multiples until the work ran bad, then to go back just a little until the twist multiple giving the best running work was found. In this manner there would be no guess work. A member reported that he had increased the front roll speed of his spinning frames 2½ turns per minute by adding one tooth of twist in his 5.00-hank roving.

This completed the discussion meeting. The association was invited to meet at Columbia, S. C., at the next session and voted to do so. As there was no further business, the meeting adjourned to the dining room of the Franklin Hotel where a luncheon was served.

Herman Cone Stresses Present Need of Modernized Thinking and Action

By Herman Cone

Treasurer, Proximity Mfg. Company

THERE are some subjects which never diminish in importance. We think that the absolute necessity of a mill man's keeping up-to-date in his thinking and methods is one of these. An outstanding and successful mill executive, in the accompanying remarks, emphasizes this as most important, and does it in a most convincing manner.

It is a fine thing for a man like Mr. Cone to meet with operating executives. The presence of such leaders in the industry is an inspiration to the operating men, and an encouragement in their work of bettering themselves and their jobs . . . . . .

THE DEPRESSION through which business has gone in this country since 1929, and from which, I hope, we are now emerging, has left in its wake a tremendous number of business wrecks. The textile industry has suffered at least its share of casualties, as evidenced by the fact that at one time there were approximately thirty-eight million spindles in place in this country, as against thirty million in 1935. Over 20 per cent have "gone by the boards".

Owing to the severity of this depression, it was absolutely impossible for all businesses to survive and, consequently, the weaker organizations had to fall by the wayside.

There are various reasons why plants had to close. I will only have time to touch on one cause, and that is, obsolescence, both with reference to equipment and to manufacturing methods. A great many mills were forced out of business because their financial set-up was such that they were unable to keep up with the procession in the installation of new machinery as it came on the market. While the development of textile machinery has not been quite as marked as that of some other industries, such as the automobile and radio, at the same time, in the last ten years there has been quite some progress made in the nature of labor-saving equipment, such as long draft spinning and roving, high speed spooling and warping, high speed looms, etc.

All of you are acquainted with the fact that a mill equipped today with old type spinning, winding, warping and weaving, is up against a pretty stiff problem when it comes to competing with its neighboring mill equipped with all modern appliances, but most of you are not in a position to do much about it.

The question of obsolescence as to manufacturing methods, however, is a subject that we all are well acquainted with and are vitally interested in, and can do something about. Our very jobs depend on our being able to cure this type of defect if it happens to exist in our organization. You men who are connected with older mills and who have been running your plants more or less along the same lines that they have been run for years, must realize that a new organization starting from "scratch" with new equipment and new ideas about job assignments, may have some advantages over you. It is your responsibility to do the best you can to work with what you have to bring your plant as near to a competitive position with the new plants as possible.

There is a great tendency on the part of some executives to resist new methods. This is a trait of human nature, and is very difficult to overcome. It is a perfectly natural condition for an older man to get into, as evidenced by the example of a man of middle age trying to learn how to play golf. He adopts a swing that he feels is correct and suitable for his shape and size, and it is very difficult for him to alter his style of play in order to improve his game. On the other hand, take a young fellow starting in. Invariably, his idea is to watch better players and constantly strive to copy the swing of the best golfers. In most cases, the younger man will find out where his faults lie and correct them, thereby improving his own game.

The same theory applies to a great many older mill executives. They have been running their mills or departments for many years, and have been so close to their jobs that they have been unable to visit newer plants where more advanced methods have been employed, or have been so hide-bound that they fail to recognize their own shortcomings. Whenever suggestions are made to these older men that they might make changes to add efficiency to their departments, they answer that the other fellow is too theoretical, and that as far as their particular departments are concerned, they are running their jobs as well as they can be run. That state of mind is extremely dangerous. I don't mean to say that anyone should jump in and take hold of every new-fangled idea that comes along, but I do feel that the older men should approach every problem concerning improvement with an open mind.

If the older man is able to get this fact firmly fixed in his mind, it seems to me that by combining the experience that has been gained through years of actual contact with the job, with the technical knowledge that can be obtained today through contact with newer organizations, he will be in a very

This is an abstract of a talk by Mr. Cone at the meeting of the Northern North Carolina-Virginia Division of the Southern Textile Association at Greensboro, N. C., last month.

strong position.

The advantage of the newer organization is not overwhelming. A great many mills have started up with overseers and superintendents, trained theoretically, who have been put into key places without first having been through the fire of experience. They have made costly mistakes, and ones that could have been avoided had seasoned and experienced men been on hand to help make the decisions.

I really believe that if an older organization will get itself geared up to the point where it can properly balance the older and newer methods of manufacturing, it will be in a position to hold its own with any newly organized and equipped mill that will be built to compete with it.

"Resistance to Newer Methods"

The resistance to newer methods is not only due to apathy on the part of the key men, but it is also due to the fear that changes will be resented by labor. I can sympathize with this fear. But on the other hand, I believe that if properly handled, this difficulty can be overcome. The people who work for you now are intelligent, and I am sure that most of them are reasonable, and it seems to me that if they are properly approached, they will be perfectly willing to co-operate with you in putting into effect anything that will tend to help the mill; just as long as they feel that the change will not work an undue hardship upon them. As I see it, the main reason for resisting newer methods on the part of the employees is the fact that they feel that their wages will be reduced or their jobs made unreasonably difficult. If the right attitude exists between you and your employees, I see no reason why a change for the better cannot be arranged.

I think it is extremely important for the employees to be informed as to the reason for any change, and what it will do to them in the nature of future wages or job assignments, and it is my opinion that if both of these questions are thoroughly understood between you and your men, 90 per cent of the causes of dissatisfaction will be eliminated, and you will be able to put across your ideas without any difficulty.

These newer mills are going to be built and these newer methods are going to be put into effect, and it is a very serious question for all of us who are engaged in this industry to decide: Are we going to be satisfied with our old methods until we are forced out of the picture, or, are we going to use the experience which we have gained over years of practical application and combine it with the newer technique, and by a combination of the two ideas make our plants as efficient as possible?

I was reading the *Daily News Record* of New York the other day and came across the following article which struck me as quite significant:

"Amory Coolidge, vice-president of the Pepperell Manufacturing Co., and David S. Cook, agent of the company's division in Biddeford, Me., inspected No. 11 and Coolidge Mills of the Amoskeag Manufacturing Co. here [Manchester, N. H.] today, and stated that the two mills and the nearby warehouses with sidings would be ideal for removal of their Biddeford plant."

Here is an old but aggressive textile concern figuring on purchasing part of the Amoskeag property. They would not be interested unless they thought they could run it successfully. If Pepperell can move down there from Biddeford, Maine, and run one of the old Amoskeag plants successfully, why couldn't the old Amoskeag management have done the same thing? I don't know the answer, but I think I could make a pretty good guess.

Making a Machinery Survey

(Continued from page 81)

there are no corrugations or roughness. The spoons can all be tested while the frame is running by lifting each sliver and noting whether the head stops on the first or second vibration of the stop motion. A test like this should be part of a weekly inspection to check on the drawing hands that might be guilty of bending or mashing spoons to balance them with an imperfect sliver or can that might be too full. Singlings made on the drawing frames by slow stop motions or drawing hands whipping the end are responsible for a large number of loom stops. The rating at this point should be in the proportion of those that are working right and those that do not stop the head with a reasonable length of sliver behind the back roll.

Creeling the Drawing

There is difference of opinion as how the cans in the back should be creeled; some contend that the cans should be creeled as they run out because it is likely that the laps are set in the cards at the same time and the variations normally found in a lap will be passed on to the drawing, also, the variation in the sliver caused from stripping is likely to come through the heads at the same place. Others claim that the best method of creeling is to set all the cans in at the same time, and to avoid getting imperfections in the same place they strip alternate cards and the laps are creeled in such a way that there are never more than six cards having their laps running out at the same time.

The advantage of creeling all the cans at one time is that once the head is started it is seldom necessary for the operative to give it more attention other than to doff the full cans in front. It is claimed that this method gives more production and less imperfections from the operative overlapping the ends or allowing the frame to run before piecing the ends. End breakage tests have been made on slubbers that showed as high as 50 per cent of the stops caused by faults that were made in the sliver between the lifting roll of the slubber and the back cans on the first drawing frames; such faults if not corrected are naturally felt through all the following processes, and the way to find the faults is to look for them.

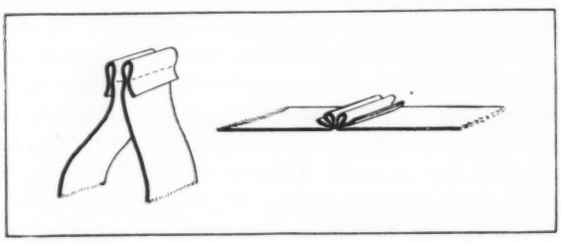
(The fourth and concluding installment of this serial article will be published in an early issue.—The Editor.)

Some Practical Mill Pointers

Spinning Tapes, Brooms, Oiling by Air, Winder Boxes, Slub Catcher and Stop Motion Cleaner

Sewing Spinning Tapes

AN OVERSEER of spinning reports that all tapes break or become worn at the point where the sewed ends overlap. To alleviate this breakage, he has adopted the plan of sewing his bands together so there is no overlapping of ends, which removes the constant bending and subsequent weakening at the point where



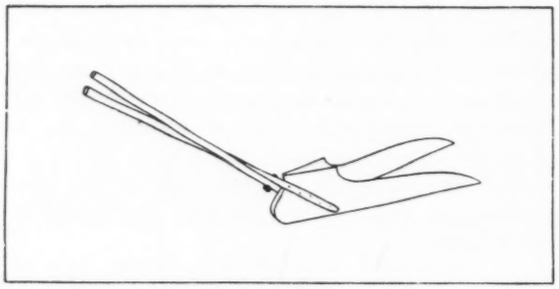
the ends are crossed. It is explained that the crossing of ends produces a bump with each complete revolution at the several places where the sewed ends touch the cylinder and spindle whorls. By his method this is eliminated.

The tape is placed in the frame in the regular manner and each end is turned back about 3/8-inch. The tape is then well stitched through the four layers of tape and the turned-back-sewed part is allowed to run on the outside.

By this method of sewing, the life of the band is increased once again. The only drawback to the new method is that the spindle plumber receives a hearty slap by the protruding sewed ends—but it doesn't take him long to remember that the knot is present.

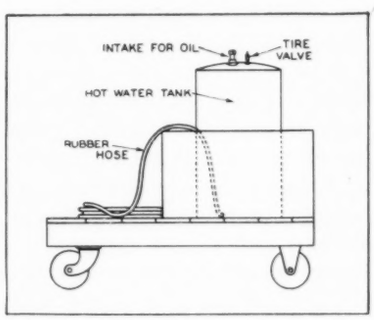
Exit Brooms

IN ONE of a group of large southern mills, the overseer of spinning wrote the overseer of spinning in another plant to get the comparative consumption of brooms per month by that department. It was found that one overseer used twice as many brooms as the other. So the overseer consuming twice as many brooms as his brother overseer in the next plant decided to eliminate the purchase of brooms entirely. For sweeping under the frames he rigged handles having a crosspiece so constructed that waste yarn might be tied to it. Thus he created further duties for his head doffer by making him also chief of broom manufacturing but eliminated all purchase of other brooms. For sweeping alleys he contrived an ingenious push device that may be opened or closed to suit the needs of the sweeper. There are two jaws to the device, 32 inches long and of sufficient height to prevent the waste falling over the sides as accumulated. These jaws are fitted with old card clothing on the bottom, to make them "waste conscious" and are joined at the rear by a stout piece of leather which serves both as a back to the pusher and as a means of holding the jaws together. The handles are 44 inches long and extend another 10 inches along the side of the jaws. The handles must be fitted so that they may cross, much in the manner that a sweeper crosses his brooms.



Oiling by Compressed Air

INASMUCH AS oiling spindles by hand requires the filling of the oil can at frequent intervals, several overseers of spinning have adopted a method that is both a saving in time and effort. A tank that holds about 15 or 20 gallons of oil is fitted into a truck with rollers on it. An old water tank cut to the proper size may be employed. In the top of the tank is welded



The truck for this oil tank should be built low enough to withstand pumps and knocks so that it will not be turned over.

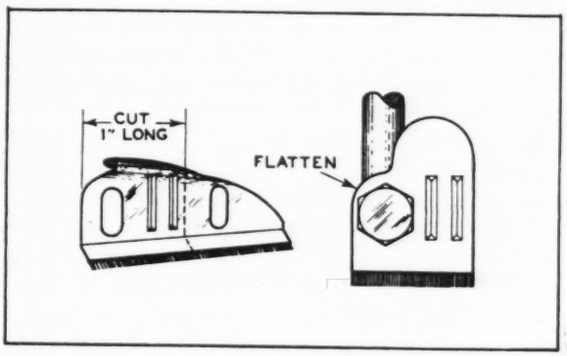
an air valve such as used in an ordinary innertube. In the bottom of the tank a hose is attached with a valve that may be operated by pressing it with the thumb. This hose should be long enough to be handled with ease. When a few pounds pressure of air is pumped into the tank, the oil flows freely whenever the thumb valve on the hose is pressed. The oiler may sit on the truck and propel it with his feet.

Pointer on Creeling for Ball Warper

TO KEEP all the transfers in one period instead of being strung out over the whole set on magazine creels for ball warpers, the overseer in one mill has adopted a different method of creeling. Ordinarily there is one operative that creels two magazines. Now the operatives work together until one creel is filled and then start on another. Besides keeping the transfers in one period, this method prevents part of the fly from accumulating on the full packages that are not in operation in the creels.

Winder Boxes

GOING BACK to "OLD-TIMER'S" suggestion of trading ideas, we get this one from an overseer of winding. The boxes on his winders were so narrow that he did not allow his doffers to dump the yarn into them but kept a man especially for this purpose. One day he decided to make the boxes several inches wider and found that by so doing he could permit the doffers to dump their own yarn into them. He gave the man that formerly did this work another job in the mill. Since widening his boxes, he has had several visitors comment upon them and state that they were going to widen their winder boxes. Thinking that possibly others would like to do the same, he has passed this idea along.

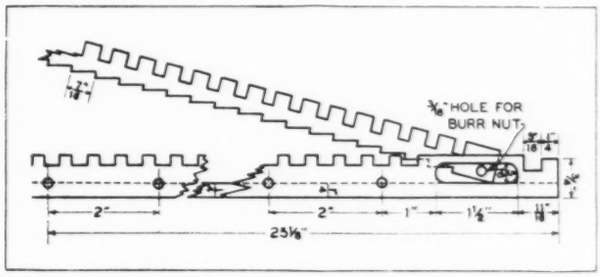


Slub Catcher

DID YOU ever see a slub catcher like this? It is made from an old slub catcher comb and straightened so that it will fit the machine. There are 25 teeth to the inch in the comb. It may raise your spooling costs a little, but if you are looking for quality work —here's a homemade slub catcher that will do the work.

Cleaning Sliding Bar Stop Motion

SHOWN HERE is a sketch of a sliding bar warp stop motion showing a saw tooth arrangement of the



sliding bar that has been devised for the purpose of cleaning the feeler bar holder and keeping it clean. The feeler bar (sliding bar) is notched with a file, as shown by the illustration. It requires only a few minutes to complete one set. The lint is gradually worked by the notches, which allow the lint to travel only in one direction, to the end of the girt.

A good place to try this feeler bar is on a stop motion that has already become clogged so that the bar is raised to a point that it does not operate properly. As soon as the sliding bar has been notched and placed back in the holder, it will remove the foreign matter in a few minutes.

28 Points of Conduct for New (and Old) Mill Men

●*A Georgia mill executive was particularly impressed with a list of 28 traits "which good managers, no matter what their particular business, possess in common", as presented in the report on "The Training of Men for the Textile Industry", as prepared by Frederick M. Feiker for The Textile Foundation. This executive told us, "I believe you will agree with me that every boy should have these 28 points firmly fixed in his mind when he leaves school, and starts to work. If I were running a textile school I would make every boy memorize these 28 points before graduating." We do agree, and feel that the list might well be studied by established mill men as well as "textile school boys", and so present them here. They were taken from an analysis made by Dr. Donald L. Laird of Colgate University. Study them, check yourself against each one, and pass the list along. Here they are:*

1. **The ability wisely to delegate authority.**
2. **The ability accurately to size up another's capabilities.**
3. **The ability to "sell" workers and associates on the importance of their jobs.**
4. **Power to keep a group working toward a common goal.**
5. **A voice that suggests confidence.**
6. **A liking for making decisions.**
7. **Ability to give clear-cut assignments.**
8. **A knack of saving duplicate effort.**
9. **A habit of seeking new and improved methods.**
10. **A habit of planning to save fatigue.**
11. **A habit of reading widely about one's work.**
12. **A way of expressing opinions without apologizing for them.**
13. **Freedom from prejudices.**
14. **Cheerful acceptance of criticism.**
15. **Courage to keep up good spirit when things go badly.**
16. **Willingness to encourage and accept suggestions from subordinates.**
17. **A knack of inspiring competition among workers.**
18. **The faculty of mixing easily socially.**
19. **Good judgment of price values.**
20. **Ability to praise good work without flattering.**
21. **Ability to criticize constructively without antagonizing.**
22. **Recognition of the wisdom of having reasons for orders understood.**
23. **Ability to keep firm hold of difficult situations without becoming unreasonable.**
24. **A faculty of concentration in difficult situations.**
25. **Courage to assume responsibility for one's own blunders without buck passing.**
26. **A habit of using facts in reaching decisions.**
27. **A habit of examining one's own decisions critically before accepting them as final.**
28. **Quickness in making decisions, without going off half-cocked.**

CURRENT TEXTILE TOPICS ....

Talk of the Month

RECOVERY from depression has a doubly welcome connotation for the cotton-textile industry. It means not only growing business, but the best outlook for prosperity since the war. For the cotton-textile industry has gone through a post-war expansion beyond reason and the depression has forced a readjustment. Thus the industry now is in a position to profit from general business improvement, where it realized only sporadic comfort from the inflation that preceded the depression started in 1929.

Recovery brings replacement to offset depression stocks

Here is encouragement and a warning. The NRA created a sound basis of mill operation. But the force of compulsion is removed. The invalidation of the NRA leaves the industry committed to restricted operation by voluntary action. It may be that the adjustment has become accepted so firmly that public pressure, labor influence and prevailing sentiment within the management group of the industry would be sufficient to prevent the former unwise minority from reverting to old practices. Regardless of that, it is essential that operations do not get out of hand again.

Outlook Sounder

Producers of cotton goods are now in a sellers' market, the like of which has not been experienced since the war except for the brief boom movement. The outlook is sounder now than in that boom, for then the excessively acquisitive instinct of a small group was creating a general ruinous condition for the cotton industry. There was also a tremendous difference in the cost of raw cotton. The combination of trying to spur the market by low prices and heavy production was one to defeat its own end, because buyers were fully aware that it gave them the whiphand.

Today the mill industry has been liquidated drastically and the excess equipment of the 1920s is a thing of the past. Such over-equipment as remains is antiquated or obsolete machinery. If there is overproduction in the coming months, therefore, it will be rather from excessive hours of production than from surplus capacity on a normal or reasonable basis of operation. The manufacturer, or group of producers, who sets in motion any move toward long hours of production will be throwing a boomerang.

As stated before the extraordinary buying of gray goods was started in September, the mills were facing a period of prosperity and were not altogether alive to the fact. They made close prices in August to quicken demand, only to find the move needless and costly a month later. For buyers were forced into the market not only to meet a broad consumer demand, but to fill up deficiencies in stocks which had been allowed to dwindle through the depression.

Now it has come to the point where mills will profit from a wave of general prosperity, but only if they keep the whiphand that present conditions have given them. It has been difficult to make desired deliveries. Mills have even gone into the market to buy goods for filling contracts. There is a situation to offer temptation to expansion of output by long hours. But an immediate, or early, reaction to free operation of machinery would be a disposition of buyers to concentrate buying again and between times to play the producers for concessions.

Not only to avoid the return of periodic over-expansion and consequent ruinous competition—with no profit in the long run to anybody since special privilege of long hours will not be accorded by the industry to a few—should manufacturers adhere to the sound operating practices maintained voluntarily for a year and a half since invalidation of the NRA. Other reasons are that the industry continues to have enough common problems, in fact a group of new ones, which will demand united attention without wanting to face unnecessary internal dissension as an obstacle.

Furthermore, these problems are such as to demand the soundest of economic practices if the industry is to prosper. The wage situation naturally comes into the forefront on a rising tide of business and higher costs of living incident to recovery. The movement toward higher mill wages has been started and undoubtedly labor will bring pressure for advances so long as conditions remain favorable. It must be recognized today that industry has reached a point where the social phases are paramount. But the matter of fair wages obviously is contingent upon profitable marketing of production and that comes back to sound mill operation.

Invalidation of the NRA and the AAA has not taken government out of business and the cotton industry faces other issues which, to say the least, demand profitable methods of mill operation. At present there are three complicated problems created by the government which concern cotton manufacture as well as other business. The social-security laws, the Walsh-Healey act with regard to government contracts and the Robinson-Patman act concerning price discrimination all demand plenty of attention. Which all emphasizes the need of avoiding bootless competition.

UNUSUALLY broad distribution of the exceptional fall demand for unfinished cotton goods has given New England, notably a center of fine-goods production, a better situation in sales and prices than for thirteen or fourteen years. The reports at the

New England Mill Situation

beginning of the fourth quarter of the year betokened full operation of machinery through the end of 1936. Cotton mill men of this district have come into a condition that until recently seemed in the realm of vision: a return of the past that outsiders at least considered irrevocably lost.

Among the encouraging facts pointed out by the *New England Letter* of the First National Bank of Boston was that unfilled orders were heavy yet inventories are moderate, in spite of the fact that mill consumption of raw material in the district was nearly 24 per cent larger for the first eight months of the year than for the same period of 1935. The bank paper found behind this situation a moderate volume of stocks also in the hands of wholesale and retail establishments, with many buyers still to cover their fall and winter requirements.

Other periods of broad demand have gone without profit in the past decade and it is significant of a wholesome adjustment, therefore, that the mills here entered upon a period of at least moderate profits. The liquidation of an average of about one million spindles a year in the past decade has finally removed the burden of over-capacity to a large degree if not altogether adequately. New England has borne the brunt of such adjustment, but also bids fair to be notably a beneficiary therefrom.

Mills have not profited commensurably with the change of market conditions in recent months, however, according to the opinion voiced by Russell T. Fisher, new president of the National Association of Cotton Manufacturers. Profits are still small, he said, at the annual meeting. "The industry has gone through a long period of unprofitable years and has used up a large part of its resources, with the result that the point has been reached where adequate returns must be earned to replenish exhausted reserves."

Mr. Fisher's election to the presidency itself is significant of a new day in manufacture. For 75 years this association was concerned with internal affairs for the most part. In the last several years the industry has had to give untold hours to consideration of state and federal legislation, until the extra burden upon the president of the Association was too much to expect of a manufacturer. Hence at the 82nd annual meeting, the name of a man not directly concerned with manufacture—but, by virtue of more than 10 years as secretary, familiar with the common problems of the industry—was submitted for the presidency, which now demands an all-time executive.

As Mr. Fisher said in accepting the office, there is no prospect that the problems connected with legislation are to be relaxed. Those Federal acts, Social Security, Walsh-Healey and Robinson-Patman, were primary considerations of the N.A.C.M. annual meeting. Two others which were the subject of resolutions asking changes by the government had to do with the Revenue Act of 1936 and the Japanese imports.

Another resolution pointed to the danger of losing the benefits of the current favorable situation for the industry by warning against the multiple-shift operation which the war-time demand necessitated. The resolution expressed unalterable opposition to the operation of a third shift of productive machinery "which if generally adopted would cause the loss of additional millions of dollars of capital and create continued economic distress among the workers of the industry."

While Massachusetts has removed an unfavorable tax situation, New England is not through with mill emigration on this score. The Pepperell Manufacturing Company has sent some machinery South, yet at this writing the assessors at Biddeford, Maine, were postponing action on a request of the mill management for an adjustment of 1935 and 1936 taxes. Local civic organizations were trying to effect a compromise to preclude the loss of more machinery.

Returning prosperity has brought wage changes and wage troubles in this district. A general movement toward increases in fine-yarn mills was forecast when a few leaders announced a voluntary rise. The increase was not satisfactory to the UTW in the mill of the Berkshire Fine Spinning Associates at Fall River and a strike ensued. The union claimed that workers there were being paid 17 per cent less than workers in other mills of the city.

Improving conditions in New Bedford were reflected in recent reports that the Nashawena Mills were likely to be re-opened soon. Engineers and cost accountants had been going over plans for operating a unit of 72,000 spindles and 1,000 looms, with about 1,200 workers on the payroll. It was understood that the corporation had sufficient funds in hand for resumption, but that it remained for the board of directors and the stockholders to approve the plan.

◆◆◆

Never acknowledge failure until you have made your last attempt, and never make your last attempt until you have succeeded.

A man without mirth is like a wagon without springs, in which one is caused disagreeably to jolt by every pebble over which it runs.—H. W. B.

To achieve what the world calls success a man must attend strictly to business and keep a little in advance of the times. The man who reaches the top is the one who is not content with doing just what is required of him. He does more.—E. H. H.

Years ago Franklin said, "Never leave that till tomorrow which you can do today", which is short for "fix that loom when you go to it".

Nothing in the sky above or the earth beneath stands still—except the mind of the unprogressive business man; it is changeless in a universe of change.

"THE SITUATION"—as Seen Across an Executive's Desk

October 18, 1936.

IT IS GOOD to be alive in the fall of the year. The air is so peppy and bracing; football on Saturdays; hunting season nearly here (and have I got a beaut of a gun this year); and business is so good that even the pessimists are not worrying about their coal bins. Walk down the street and see any textile manufacturer and his face will be one big smile, and he'll say expansively, "Ain't business grand?" or words to that effect.

When he says it this year he is not kidding himself, or trying to make his competitor feel badly; he is telling the truth. Textile business is not only good and plump but it is showing definite proofs of its fattened condition. With their books fast getting into the "black" the people in the industry, mill executives, trade association executives, and members of allied industries are all showing a more positive attitude toward the scheme of things than at any time in years and years. They seem to have adopted the same sort of spirit the old-day pioneers had—they are headed *out* . . . out of depression, out of dullness, out of the old way of thinking. They are out on the road toward *stabilized industrial prosperity.*

There are several concrete effects showing the trend resulting from this new mental attitude on the part of mill management. One of the first reflections of its influence is the move in machinery installation —the willingness to revamp. Instead of hoarding the funds released by the spurt of business which started just five months ago, mills which have done no improving in their machine set-up for a decade or more, have started to spend on modernization. Machinery dealers report ready market for late type equipment, in spinning and weaving and preparatory machines. With profits in the textile industry rapidly going back into equipment one realizes that the era of liquidation has halted—though time marches on.

Advertising Textiles

Another step forward in this march is the advertising program now being undertaken by individual cotton-textile groups, and by allied industries. There is found not only the desire to advertise their products, but the installation of a new thought in their advertising copy. Take, for instance, the promotion plan worked out by the Linen Supply Association, which will release five million dollars during the next year in advertisements. The Linen Supply Association is made up of countless linen supply houses all over the country, which rent clean cotton towels to offices; clean cotton uniforms such as worn by beauticians, nurses, and cotton textile mill operators; clean cotton jackets worn by barbers, workers in medical clinics, dentists; clean cotton aprons for grocery clerks, butchers, bakers; clean cotton sheets and pillow cases to boarding houses and apartment hotels; clean cotton diapers to harassed young mothers of babes-in-arms. Although the company may go under the name of "linen supply house"—its supplies are all made of cotton and it is one of the biggest consumer outlets for cotton goods in the world. This is due to the increased public interest in the neat appearance of the people who serve them, and the increasing attention given by business management to working conditions of employees.

Tying in with the same theme song of cleanliness via cotton was the recent advertising in consumer magazines conducted by Wellington, Sears & Co. Thus is being promoted the thought that cotton is the world's most useful servant. A cracker-jack good idea. Such advertising not only brings the attention of the public to the company making the goods but to the material from which the goods may be made. It gives a human interest story to a prosaic theme . . . or both barrels at one shot.

Activities of Trade Associations

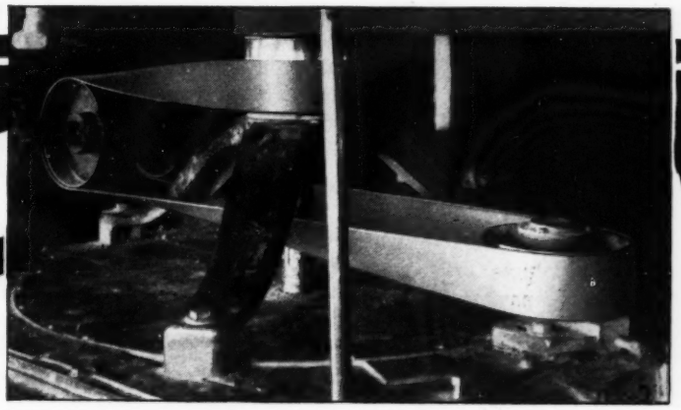
The trade association activity is being shown in a lusty manner by the fall program put on by the Cotton-Textile Institute, first, by announcing that their work had grown to cover such a wide field that they would establish a Washington branch, to take care of legislative matters. This office would be manned by a small force, and would be used as sort of a base for Dr. Murchison, president of the C-T I, and as headquarters for any executives who may have to go to Washington on textile problems. The New York offices will remain ably staffed and in touch with the market developments. This is a good move. It shows thought.

Facing the scheduled annual meeting of the C-T I on the 28th of October, President Murchison called a gathering of all executives of textile trade associations for a Coordination Conference in New York the day before the annual meeting. At this conference all integral problems of the various associations will be discussed, and from them will be worked out an interlocking work program which will lay the foundation for better understanding between mills and associations and allied textile associations during the coming year and the future years.

Following shortly after the announcement of the above plans Dr. Murchison gave an address at the annual meeting of the National Association of Cotton Manufacturers in Boston (Oct. 7). In this talk he brought forth plans for a stabilization program for the industry. (See pages 62 and 79.)

This stabilization program, to my mind, is one of the very greatest ideas ever put up to the cotton textile industry. If it works, we will have the finest business in the world and if it doesn't it will be a reflection on our own integrity that we allowed it to fail. Definite plans will be underway on this within a few months and then we shall see of what mettle we are made.

Next on the program of announcements by the C-T I was that of a proposed junket to Japan by a group of cotton textile leaders who will study the im-



Never touched in four years

* [redacted]

The Goodyear Tire and Rubber Co.,
Atlanta, Ga.

Gentlemen:

With regard to inquiry from you on the service of your Goodyear Compass Cord belts on our vertical openers.

The G.T.M. (Goodyear Technical Man) called at our plant in January 1932 and recommended to us the advantages of Compass belts on the Gallows drive on our Saco-Lowell vertical openers. We purchased two 4" Compass belts 16' 11" long each. These belts were received in February 1932 and applied immediately. Since date of application these belts have now run a total of more than 15,000 hours of continuous trouble-free life.

Prior to applying these belts on our openers we had tried many different makes of belting none of which gave anything like the service of Compass belts that are now on these drives. Since installation these belts have never been touched and appear to be good for at least several more years.

Trusting that the above is the information you wanted as regards our experience with Goodyear Compass belts.

Yours very truly,

[redacted]
President

* Name on request

Need we say more?

...M.-Specified
...odyear COMPASS Cord Belt
4" x 16' 11"
for Gallows Drive
Saco-Lowell Vertical Opener
Installed February, 1932

10" DIA
—4" FACE
686 R.P.M.

10" DIA
—4" FACE

THE GREATEST NAME IN RUBBER

GOODYEAR

BELTS • MOLDED GOODS • HOSE • PACKING

port problems on cotton goods with Japanese officials. Plans regarding this are not yet completed but it is felt that the trip will be made before the end of the year and that much good will come of it.

A Sum-up of the Situation

Now—in an *economic sum-up* of better textile business we find that the biggest volume of cotton goods were bought and sold during the past ten weeks than has been marketed for ten years in like period of time. Textile mills at this moment have reached a point of what might be called "selective selling". We have low stocks, or no stocks, and the demand for our goods is startlingly like college rush week. A great many mills are sold up solid through the first of the year—nearly as many are sold up through the summer months, even. Those that are not sold up are picking and choosing their customers. They are also naming their own prices. At last the mills have awakened to the facts about cotton and are putting that into their cost figures.

Not so long ago a yarn customer gave a mill an inquiry for a large poundage of 48s for 48 cents. The mill man turned the order down with the comment that his price was 50 cents for that yarn. The customer argued, insisting that the market was 48 cents because, as he said, "the *Journal of Commerce* quotes it at 48 cents." "Then," said the mill man with finality, "buy your yarn from the *Journal of Commerce;* my price is 50 cents".

Which means nothing at all except that prices printed in the morning trade edition may be completely out of line by lunch-time.

And where is all this stuff going? Is it being bought for speculation? Is it going to warehouses for stocks? The answer is that it is going to the consumer as fast as the trains, "flying box-cars" and freight busses can take it. The retailers are enjoying a great buying spurt, the wholesalers, converters and finally the mills are all in the cycle of placing goods with the ultimate consumer—the poor devil who has had so little buying power for so many years! With this trend definitely established the mills find that at last they are really on the way to making real money, real honest-to-God profits. Not only that—but they are willing to come out in the open and admit it.

But, we can't always have only sunshine in the summertime, and fall always brings the frost. With the good times coming to the cotton textile industry the UTW decides to jump in and hog some gravy for themselves. The closing sessions of the United Textile Workers of America convention were devoted to preparation for the most intensive organization campaign ever witnessed in the southern textile industry. They voted to increase the international per capita tax from 20 cents to 40 cents per month to be used solely for ammunition for organization. A few days later it was learned that a drive would be made by the UTW for a 20 per cent increase in pay for mill workers, 40 hours work week, limitation of machine operation to two shifts. The latter two clauses will, of course, have virtually no effect on the cotton textile industry because deviation from the Code No. 1 regulations have been at a minimum, but it is extremely doubtful just now that many mills, if any at all, could stand a 20 per cent increase in their pay roll. Some say the consumer could not stand such an increase in the cost of goods—and that the now easy flowing market would stagnate.

The proposed demand for this increase in wages was made after several mills, finding they are now on a profitable basis, publicly announced increases in pay from 2 to 5 per cent.

The smoldering labor situation as it stands today is one to cause some amount of unrest in Worth Street—and many merchants there are cautioning the mills about selling too far ahead with this problem facing them.

Legislative Worries

We also have our share of legislative worries which seem to crop up every month. This time it is the effort to get adjusted to the regulations of the Walsh-Healy Bill, which were to go into effect September 28. The Cotton-Textile Institute in behalf of its members filed an application for exemption from that provision of the Government contracts act which fixes the minimum age of female workers at 18 years in any business seeking government orders.

Lots of folks are going to grumble considerably about the Walsh-Healy Bill. But, in my opinion it is a blessing in disguise, it is a lamb masquerading as a wolf! The truth of the matter is that it will eliminate the chiseler. No cotton goods merchant who is apt at any time to get an order for a government contract is going to take the chance of buying his yarn, his cloth, or any part of his finished product from a mill unless he is sure that mill is running according to Walsh-Healy regulations. These regulations apply to the first processor as well as the final salesman. It will have more of a policing effect on mill management than the NRA or Code No. 1 ever had. It will stop a lot of trouble that has not ever started yet—but would start if this act was not ready for the fellows that need watching. Of course, I'd lose lots of friends now if they knew I felt that way about the business, but ten years from now they will be glad of that bill too.

With all the general excitement over business and getting business that we have had this month I am mighty glad that the filing of windfall taxes has been postponed until December 15. That is a help—and maybe we can get to it by then.

Bearing out the general layman's feeling about business was the third quarter report of the Department of Commerce. It was in line with a recent statement by Secretary Roper that demand for textile products is keeping pace with a strong upward movement that finds general business activity at the best levels of the recovery period.

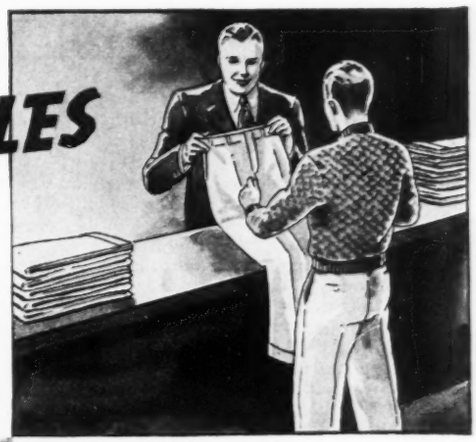
We go a step further—because the textile industry was going into a slump long before the rest of the world felt depression. Consequently it had a longer road to travel to get out of the depths. It seems to have done just that though—

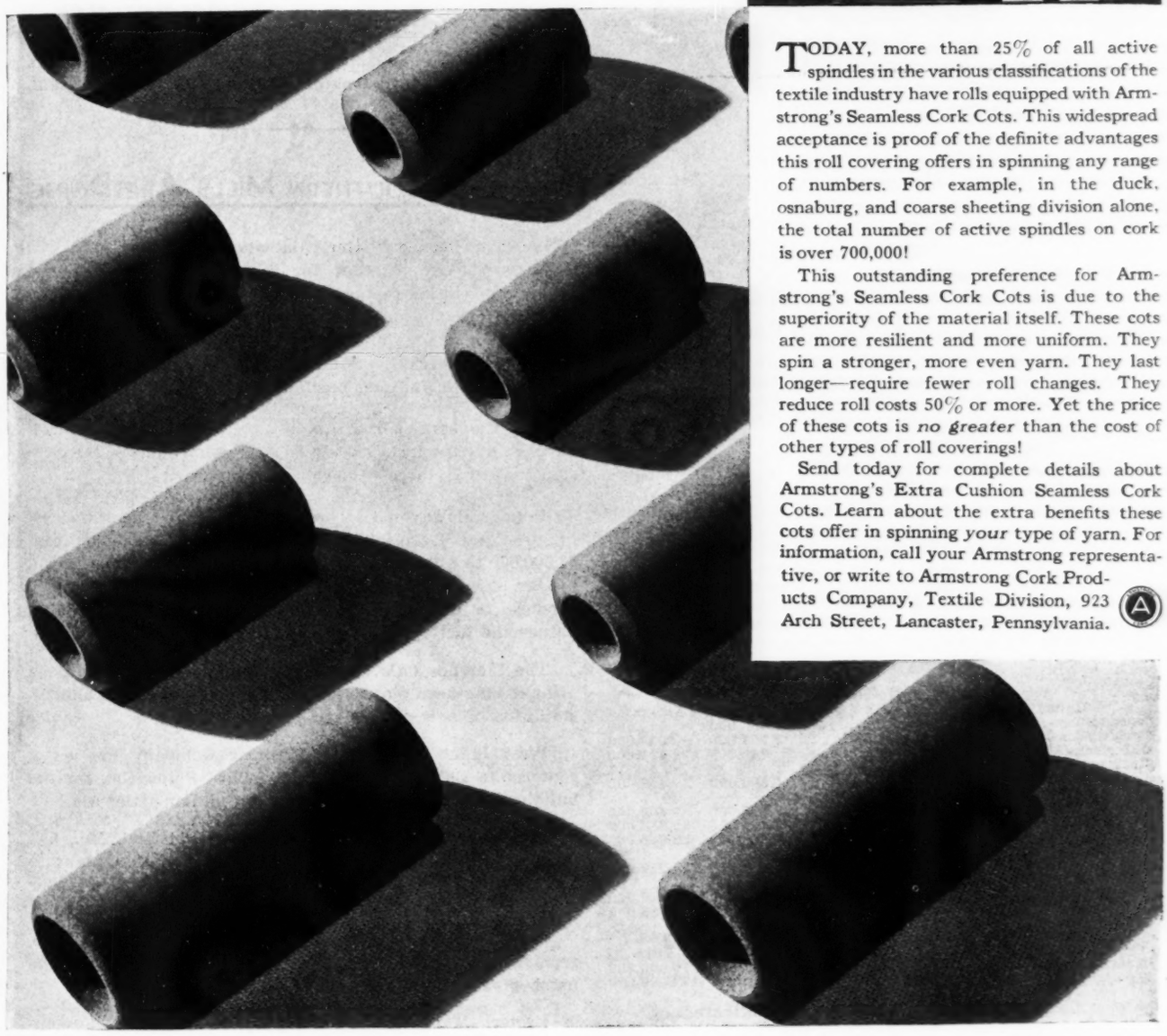
"Brisk Activity Is Noted in Textile Industries" says the Department of Commerce—in its quarterly report—and brisk activity it is!

TODAY...

724,068 ACTIVE SPINDLES

SPINNING YARN FOR DUCK, OSNABURG, AND COARSE SHEETING, ARE ON ARMSTRONG'S CORK COTS





TODAY, more than 25% of all active spindles in the various classifications of the textile industry have rolls equipped with Armstrong's Seamless Cork Cots. This widespread acceptance is proof of the definite advantages this roll covering offers in spinning any range of numbers. For example, in the duck, osnaburg, and coarse sheeting division alone, the total number of active spindles on cork is over 700,000!

This outstanding preference for Armstrong's Seamless Cork Cots is due to the superiority of the material itself. These cots are more resilient and more uniform. They spin a stronger, more even yarn. They last longer—require fewer roll changes. They reduce roll costs 50% or more. Yet the price of these cots is *no greater* than the cost of other types of roll coverings!

Send today for complete details about Armstrong's Extra Cushion Seamless Cork Cots. Learn about the extra benefits these cots offer in spinning *your* type of yarn. For information, call your Armstrong representative, or write to Armstrong Cork Products Company, Textile Division, 923 Arch Street, Lancaster, Pennsylvania.

FOR SPINNING AND CARDROOM ROLLS

ARMSTRONG'S EXTRA CUSHION SEAMLESS CORK COTS

ARMSTRONG HAS MADE CORK PRODUCTS SINCE 1860

COMMENT ON THE COTTON MARKET

New Orleans, October 15, 1936.

INTERNATIONAL financial and trade developments during the past month, especially of late, were of a constructive nature, serving to promote optimism and maintain confidence in the future. The indicated American cotton crop, as of October 1, promised a larger yield than was forecast the previous month—11,609,000 bales versus 11,121,000 as of September 1. Nevertheless the market maintained a steady undertone, there continued an urgent demand for cotton goods in the North, as well as a keen inquiry for raw cotton in the South, and domestic consumption of raw cotton during September was of record-breaking proportions for that month.

By far the most important development during the period, however, was the co-operation of the leading nations looking to stabilization of currencies, which is expected to result in the lowering of tariffs and the elimination of quotas, thereby permitting expansion of international trade, which would tend to restore contentment and peace throughout the world.

GOVERNMENT COMPARATIVES

Season—	1936-37	1935-36
Acreage for harvest, acres	29,720,000	27,335,000, final
Indicated crop, bales of 500 lbs. gross weight	11,609,000	10,638,000, final
Condition	61.8	64.0
Indicated yield per acre, lbs.	186.9	186.3, final

SEASON'S INDICATED SUPPLY OF AMERICAN COTTON

Bales—	This season	Last season
World's carry-over, August 1st	6 732,000	8,728,000
Indicated crop, government forecast	11,609 000	10,638,000
Total indicated supply for season	18,341,000	19,366,000

Former Huge Surplus of American is Fast Disappearing

Last season, according to the New Orleans Cotton Exchange, the world consumed 12,405,000 bales of American versus 11,325,000 the previous season. Prospects this season are for a larger consumption of American by the world, perhaps about 13,000,000 bales. In that case, based upon the present indicated season's supply, the world's carry-over of American at the close of next July will probably be reduced to about 5,300,000 bales, or to about normal for the first time in several years, which would compare with 6,732,000 this year; 8,728,000 in 1935; 10,598,000 in 1934; 11,339,000 in 1933 and the "peak"—12,911,000 bales in 1932. In view of the smallness of the indicated crop, compared with prospects for consumption this season, it is not surprising to witness such a good demand for the staple as prevails thus far this season. This is a situation, prospects of returning to normalcy, from which much consolation may be derived.

CENSUS REPORT

United States— Bales—	This season	Last season
Consumption of lint, September	630,000	451,000
Consumption of lint, 2 months	1,204,000	859,000
Mill stocks, September 30th	849,000	723,000
Stock in public storage and warehouses, September 30th	6,806,000	7,143,000
Stock in mills, public storage and warehouses, September 30th	7,655,000	7,866,000
Active spindles during September	23 514,000	22,682,000
Active spindles during August	23,433,000	22,046,000
Consumption of lint in Cotton Growing States, 2 months	1,008,000	723,000
Consumption of lint in New England States, 2 months	159,000	110,000
Consumption of lint in All Other States	37,000	26,000

BRITISH BOARD OF TRADE REPORT FOR SEPTEMBER

Year—	1936	1935	1934
Exports of yarn, pounds	12,000,000	10,000,000	10 000,000
Exports of cloth, yards	154,000,000	150,000,000	178,000,000

Larger Foreign Cotton Crops Indicated

Advices indicate larger foreign cotton crops this year versus about 15,000,000 bales last year. During the past few years there has been a steady increase in foreign production, but there has been a steady increase in consumption of foreign growths also in late years. It is possible that the improvement in world trade may care for the increase in foreign growths. The big increase in production is reported to be mostly in China and most of that product is for Oriental consumption. India cotton, which is the greatest competitor of American, in its movement to market, does not assume formidable proportions until after the holidays, and as the American government is not likely to offer its holdings until after the new year unless the price advances to a level to warrant them doing so, the market is apt to be sustained, perhaps work higher, or be supported on depressions during the remainder of the calendar year.

Evidence is not lacking to show that the world, especially the United States, is now making real progress in the way of business recovery. The outlook is so cheerful as to denote the possibility of a development something akin to a "boom" in 1937. Cotton mill activity in this country rose well above the seasonal average recently, and the gray cloth market experienced one of its most active periods in possibly 13 years. Lately it was revealed that the steel industry, which is considered one of the major barometers of trade, was operating at 75½ per cent of capacity, a new top for the year. Furthermore, according to press advices, the steel companies entered the final quarter of the year with the largest unfilled orders since 1929.

Sentiment is usually a power, hard to combat, and the glowing trade advices from the industrial centers, if maintained, coupled with the move to stabilize foreign exchange and the dollar, is likely to be reflected in the markets.

A late Washington press dispatch is to the effect that control of the international money markets to force world-wide monetary stabilization is the real purpose behind the new currency and gold agreements between Great Britain, France and the United States.

WHAT THE SOUTHERN MILLS ARE DOING

STANDARD HOSIERY MILL, Alamance (Burlington), N. C., has placed an order for 6 additional full-fashioned knitting machines, representing an investment of more than $60,000. The new machinery will make a total of 50 full-fashioned machines under the roof of the modern building constructed several years ago. Standard Hosiery Mill manufactures both full-fashioned and seamless hosiery.

The Bamberg (S. C.) plant of Santee Mills, Orangeburg, S. C., has installed single-process picking as the first step towards a large modernization program.

Industrial Rayon Corporation will build a manufacturing plant at Painesville, O., at a reported cost of from $7,500,000 to $10,000,000. The plant will manufacture rayon by the viscose process and will employ about 800 or 900 people. It is said that the total annual output of the Painesville factory will be about 12,500,000 pounds of rayon.

The Florence (Ala.) Cotton Mill has resumed operations after having been closed for building improvements and installation of new machinery.

West Point (Ga.) Manufacturing Company has let a contract to Batson-Cook Company, West Point, Ga., for the building of a new $40,000 auditorium at Langdale, Ala.

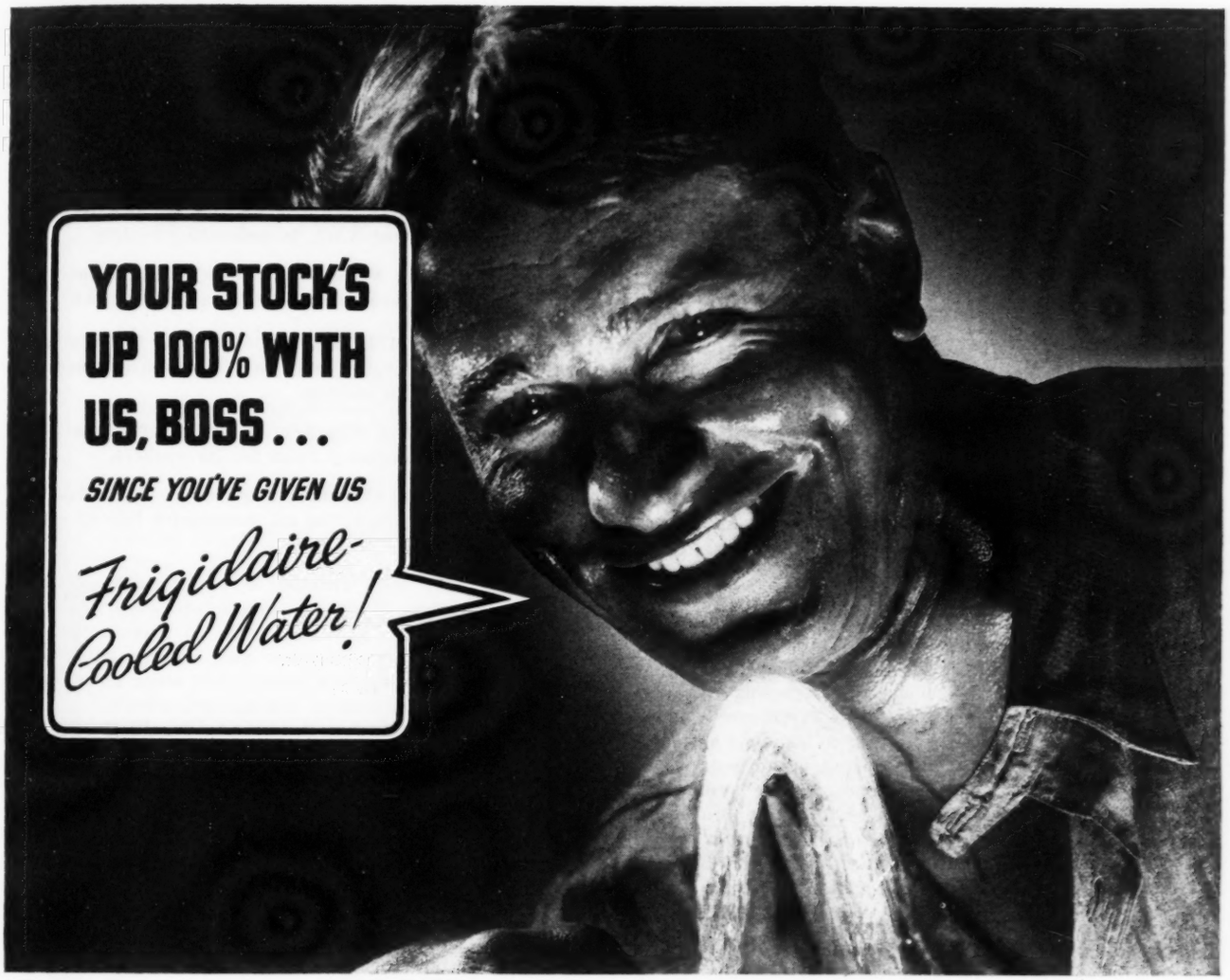
Pepperell Manufacturing Company, Biddeford, Me., has made definite plans to move 600 looms from that plant to the Opelika (Ala.) plant of the company. Additional floor space is being provided at Opelika to house the machinery.

Cowikee Mills, Ozark, Ala., is replacing old machinery, repairing mill and village buildings, and increasing the number of spindles from 5,916 to 9,444.

Eastern Manufacturing Company, Selma, N. C., has announced plans for a modernization program and an addition to the Lizzie Unit of the mill. Contracts have been placed for 10,000 new long-draft spindles, new pickers, and new drawing frames.

Strickland Cotton Mills, Remerton, Ga., recently has installed 45 new Saco-Lowell spinning frames and two Saco-Lowell slubbers; an additional slasher and three more slubbers are being installed.

Roswell (Ga.) Mills, Inc., is building an addition to its No. 2 plant to be used for new weaving equipment.



Modernize!

...INCLUDE FRIGIDAIRE WATER-COOLING EQUIPMENT IN YOUR BUDGET FOR 1937!

● Frigidaire Water-Cooling Equipment throughout your plant is one of the soundest investments you can make in 1937. It is convincing *proof* to the men on the job that their welfare—their health and comfort—is of prime importance to you. No other outlay you can make in factory modernization will win more confidence, more goodwill.

And looking at it purely from the viewpoint of profit, it is equally sound. Because Frigidaire Water-Cooling Equipment means greater efficiency in every department. More production, fewer mistakes and accidents. It also means a tremendous saving in dollars and cents over old-style methods. A saving so great that Frigidaire actually pays for itself in a short time and continues to earn a big investment return for years to come. When we say "pays for itself" we mean just that. And we're ready to *prove* it to *you* by a FREE survey and estimate in your own plant.

It will pay you to get complete details. Find out how little it costs you and how much it saves you to have cool, sparkling water throughout your factory. There is Frigidaire Water-Cooling Equipment for every need. Efficient, dependable, economical. *Investigate at once and include Frigidaire equipment in your 1937 budget.*

For free survey and estimate see your nearest Frigidaire Commercial Dealer or drop a line to Frigidaire Corp., Dept. 77-11, Dayton, Ohio.

G FRIGIDAIRE MADE ONLY BY GENERAL MOTORS M

Albert J. Barston, Charlotte, N. C., has established a rayon weaving plant in the Wade Loft Building and is operating 104 looms.

Durham (N. C.) Hosiery Mills have installed 3 new high-speed full-fashioned hosiery machines.

American Enka Corporation, Enka, N. C., will place a contract soon for a 100,000-square-foot addition to its rayon plants.

The Pinehurst Silk Mills, Inc., Hemp, N. C., have begun work on an addition to their plant that will house the silk throwing machinery. The building is to be 210x165 feet.

Carolina Cotton & Woolen Mills Company, the textile division of Marshall Field & Company, Chicago and New York, is making an addition to the Bedspread Mill, at Leaksville, N. C.

Marion (N. C.) Knitting Mills, Inc., is building a brick addition, 20x40 feet, to the east side of the plant.

Roanoke Mills Company, Roanoke Rapids, N. C., will build an addition to the warehouse of mill No. 1 and install opening room equipment in plants No. 1, No. 2, and the Patterson Mills Company.

Startex Manufacturing Company, Tucapau, S. C., is discarding the 65,000 spindles in the print cloth mill and replacing them with 45,000 new spindles. Spooling and warping equipment will be replaced also; 1,000 narrow looms will be replaced by modern looms; a blending system is being installed in the opener room and the pickers are being concentrated in an improved one-process system. 44 looms will be added in the crash mill, the hydro-electric system will be built up from 40 to 60 cycles, and modern air-conditioning, heating, and humidifying will be installed. The village will also undergo repairs.

A new hosiery mill operated by Dan Boone and O. N. Norris has been established at Chattanooga, Tenn., and employs 25 operatives.

A new hosiery mill is being opened in the Highland Park suburb of Kingsport, Tenn. C. F. Rogers is an official of the new plant.

The Holeproof Hosiery Company, Milwaukee, Wis., has let a contract for a new $50,000 building to be erected in Marietta, Ga., in the near future.

Georgia Webbing & Tape Company, Columbus, Ga., has completed a 50x100-foot addition to its building.

Wheeler Hosiery Mill, a new concern of Brevard, N. C., is installing machinery and remodeling its building. The company will manufacture full-fashioned hosiery.

Construction of the buildings for the Robbins Knitting Company, Spruce Pine, N. C., is proceeding rapidly.

Sterling Knitting Mills, Inc., Hickory, N. C., have begun operations and are manufacturing specialty lines.

McPar Hosiery Mill, Inc., Marion, N. C., is building a 26x54 foot addition to its mill, providing extra space for grading, packing, and storage.

The Lanett (Ala.) Bleachery & Dye Works has completed a first-aid emergency room for its workers.

Hamblen Knitting Company, Morristown, Tenn., has begun operations manufacturing an inexpensive line of men's silk-plaited hose.

Charters have been granted to Clark Knitting Mills, Inc., Rutherfordton, N. C., to manufacture hosiery; A. W. Wheeler & Son, Inc., Brevard, N. C., to manufacture all types of hosiery; and to Wallner Silk Hosiery Mills, Inc., Pulaski, Va., to manufacture hosiery and other knitwear.

Pacific Knitting Mills, Los Angeles, Cal., have installed machinery with which to test all fabrics that go into their bathing suit line.

Flint River Cotton Mills, Albany, Ga., is having all of the machinery overhauled by the Guillet system.

Celanese Corporation of America, Cumberland, Md., is reported to have let a contract for the erection of a building to house the turbine generator unit.

Dallas Manufacturing Company, Huntsville, Ala., is equipping its steel rolls with the Guillet taper-fitted neck. Dixie Spindle & Flyer Company, Inc., Charlotte, N. C., is doing the work.

Summit (Miss.) Textile Company is reported planning to build a new boiler plant and dyehouse; work will begin soon.

Additional Personals .

Whiteway Heads Proctor and Schwartz Advertising

Stanley Whiteway, formerly a member of the staff of the Washington Herald and Washington Post, has been made head of the reorganized advertising department of Proctor & Schwartz, Inc., Philadelphia, Pa.; C. W. Rusk, who has been connected with the company for many years continues in his capacity of assistant.

WILLIAM HOEPFNER has become overseer of finishing at the National Dixie Mills, Newnan, Ga., succeeding J. A. RING, resigned.

HOWARD K. HOUSER has been made superintendent of Plants Nos. 1 and 2 of the Rhyne-Houser Manufacturing Company, Cherryville, N. C., and the Abernethy-Houser Manufacturing Company, Statesville, N. C., succeeding WILLIAM M. MCCLOUD, who was fatally injured in an automobile accident the latter part of August..

A. PATTON has been made overseer of dyeing at the Yale Woolen Mills, Yale, Mich., succeeding CHARLES M. HOWARD.

A B. CROSS, who has been associated with the Rock Hill (S. C. Printing & Finishing Company, has joined the staff of M. Lowenstein & Sons, Inc., as technical adviser.

E. P. COFIELD, formerly superintendent of the Chadwick-Hoskins Mills, Charlotte, N. C., has become superintendent of the Edna Mills Corporation Reidsville, N. C., succeeding I. N. DUNN, resigned.

CALDWELL RAGAN has been elected president of the Ragan Spinning Company, Gastonia, N. C., succeeding the late G. W. RAGAN. MRS. G. W. RAGAN was elected vice-president and GEORGE RAGAN, secretary-treasurer.

Bulletin by Morse Chain

Morse Chain Company, Ithaca, N. Y., a division of Borg-Warner Corporation, has made available a bulletin describing and illustrating its silent chain drive, couplings, sprockets, and roller chains. Tables for proper use of drives are included and instructions are given for the installation and lubrication of chain drives. The theme of the data given is that teeth, not tension, turn chain drive shafts.

More Perfect Yarn at Lower Cost

That's why 7 out of 10 mills find NON-FLUID OIL an economical spinning frame lubricant.

Because NON-FLUID OIL does not creep from roll necks and spread out on the face of rolls, it eliminates the chief cause of blackened yarn.

For the same reason, NON-FLUID OIL reduces the cost of lubrication and the frequency of application because it remains in roll necks, lubricating dependably, until entirely consumed — outlasting liquid oil 3 to 5 times.

Write today for free testing sample and bulletin, "Lubrication of Textile Machinery."

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Main Office: 292 Madison Ave., New York, N. Y.
So. Agent, L. W. Thomason, Charlotte, N. C.

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IN U.S. PAT OFFICE & FOREIGN COUNTRIES

MODERN TEXTILE LUBRICANT

Better Lubrication at Less Cost per Month

BRONZE BEARINGS

Over 600 Sizes

- **MACHINE FINISHED**
- **READY FOR ASSEMBLY**

● Standardize on Johnson General Purpose Bearings and you will save both time and money. The range of sizes—over 600—makes it possible to order exactly according to your requirements. The alloy—a true and consistent 80-10-10 (S. A. E. 64) assures you the maximum in bearing life and performance. Immediate service is available from complete stocks in every principal industrial center.

For more than twenty-five years, Johnson Bronze has specialized on the production of quality bronze bearings. This vast accumulation of experience, plus modern, up-to-date machinery and methods enables us to offer you a quality product at an extremely reasonable price.

Write today for a copy of Bulletin 360. Its 48 pages—fully illustrated—will give you complete information on General Purpose Bearings, Johnson UNIVERSAL Bronze Bars—completely machined—and Electric Motor Service Bearings. There is no obligation.

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JOHNSON BRONZE
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New Textile Equipment and Publications . . .

Detector Locates Broken Needles

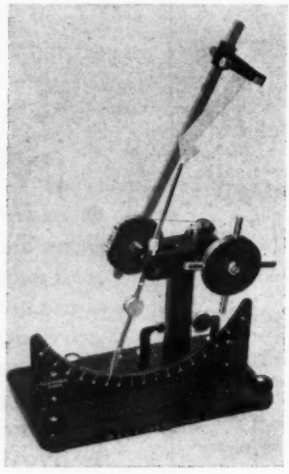
General Electric Company, Schenectady, N. Y., has developed a device which locates broken needles in the manufacture of rugs and carpets. Often the needles used in producing rugs and carpets break and become deeply imbedded in the finished product. This new device will be used to replace the former tedious and time-wasting methods of inspection. With it, the presence and exact location of the steel barb can be ascertained by passing the rug or carpet through a frame twice in directions at right angles. The new invention consists of a test coil, a motor-generator set, and an amplifier. Power is supplied by the motor-generator set at 2,160 cycles to the test coil which has two primary and two secondary windings. The carpet or rug passes through a narrow slit, going through first one set of primary and secondary windings and then the other. The passage of a broken needle causes a distortion in the magnetic field and produces an unbalanced voltage in the secondary circuit. This unbalance is amplified by the resistance-coupled amplifier in the secondary circuit and causes a relay to open and signal lights to operate. Lengthwise and transverse passes of the rug or carpet are all that are necessary to detect the needle along two lines which intersect and give the exact location of the imbedded needle.

New Bobbin Conveyor

The Terrell Machine Company, Charlotte, N. C., recently has announced several new devices for equipping bobbin-stripper machines. In the "New Equipment" section of the October Cotton was presented a bobbin box hoist which is employed in raising the box of quills to be stripped onto the apron of the machine. Now the Terrell company has announced a new bobbin conveyor for carrying cleaned bobbins from one or more machines to bobbin boxes, facilitating a further reduction in handling. The new conveyor may be furnished with belt or motor drive. When the conveyor is combined in use with the bobbin-box hoist, it practically eliminates handling of the bobbins, except for the actual feeding of the machines. The conveyor was explained and illustrated in the September issue of *Termaco Times*, house organ of The Terrell Machine Company.

Gurley Stiffness Tester

W. & L. E. Gurley, Troy, N. Y., manufacturers of engineering instruments, are marketing a stiffness tester which was developed by the research division of a large paper manufacturer. Although the stiffness tester was originally designed for use on paper, it is now also employed on felts and a number of other textile materials. It is believed to be of value to textile manufacturers and finishers. The instrument converts to definite figures the stiffness, softness, and flexibility or "feel" of the material. It shows the



Stiffness tester

effect produced by starching, sizing, weighting, and tightness of weave, etc.

The Gurley stiffness tester consists of a balanced pointer which can be loaded with weights of various values, placed in various positions below the center. A sample of material is cut to standard size, clamped in a movable arm, and drawn over the top of the pointer until the bending of the sample releases the pointer. The amount the pointer is deflected, read on a scale at the bottom end, is the measure of stiffness. It will accommodate a wide range of materials, from voile to denim or stiffer fabrics.

Book on Waterproofing Agents Distributed Gratis by Mellon Institute

Mellon Institute of Industrial Research, University of Pittsburgh, Pittsburgh, Pa., is distributing gratis a publication by the Textile Finishing Fellowship on the development of improved waterproofing preparations for open fabrics. In the theoretical discussion the distinction between water repellency and waterproofness is emphasized. Water repellency is resistance to wetting, a surface property. Waterproofness is resistance to penetration by water, and, in open fabrics, depends not only on the water repellency of the thread surfaces, but also upon other physical properties of the cloth, particularly the size of the largest opening through it. Explained in the literature is the use of a hydrostatic pressure method for measurement of waterproofness in lightweight open fabrics. The method of recording and analyzing the test data to arrive at a numerical rating for the waterproofness of the fabric is explained in detail.

Patent Awarded in Textile Field

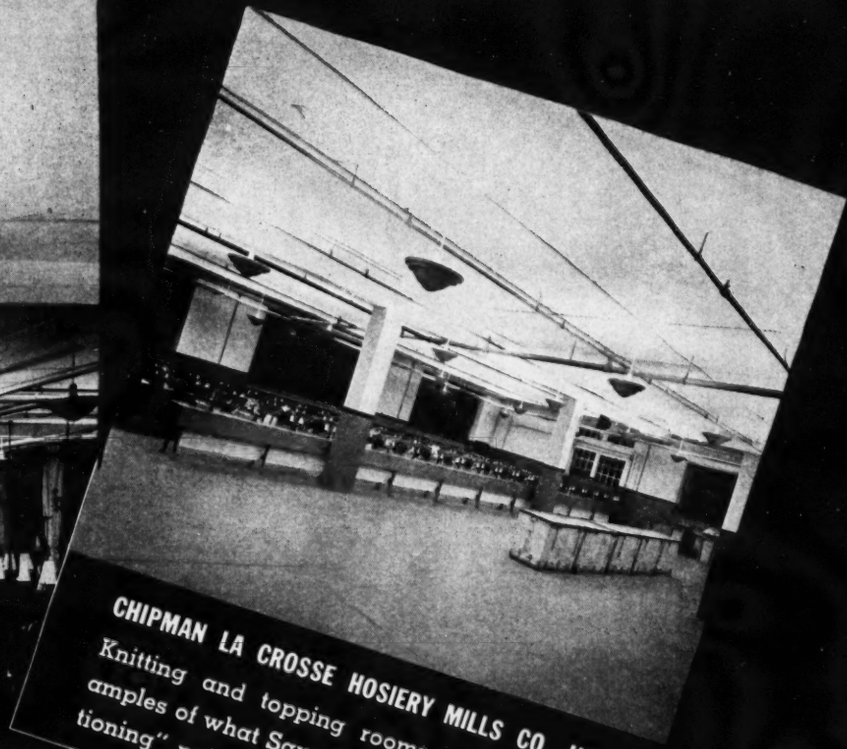
According to Paul B. Eaton, patent attorney, Charlotte, N. C., Ernest J. Eaddy, Spartanburg, has been awarded a patent on apparatus for cleaning machinery, especially winding machines, spoolers, etc., in textile mills. Mr. Eaddy encases portions of the machines to leave slots where lint collects in the greatest quantities and then applies suction to the interior of the machine to remove the lint from those portions adjacent the slots.

Leaflet by Westinghouse on Micarta in Textile Mills

"Micarta in Textile Mills" is the title of a new leaflet describing the uses of this plastic material in textile mills as issued recently by Westinghouse Electric and Manufacturing Company, East Pittsburgh, Pa. Included are applications to spinning buckets, skein dryer rods, pulleys, washing drums, hose inspectors and various standard shapes. Also, a booklet entitled "Where Can You Use Micarta" includes a description of Micarta, its mechanical and electrical properties and the standard forms available.

McDonnell & Miller Catalog

McDonnell & Miller, Chicago, Ill., have distributed their new complete catalog containing information on their float operated valves and switches. The catalog contains worthy information on the subject of boiler water-level control and tells why it is a sound investment. The water-level control is to protect the boiler from unexpected or accidental loss of water due to leaky air valves, sagging returns, etc., and to assure feeding of water only when it is needed. All of the basic features of the McDonnell controls are explained and illustrations are given throughout the booklet.



CHIPMAN LA CROSSE HOSIERY MILLS CO., INC.

Knitting and topping rooms, are fine examples of what Save-Lite—the "plant conditioning" paint—will do wherever it is used.

LIGHTED WITH SAVE-LITE

The combination of indirect lighting and Save-Lited walls and ceilings is fast making many plants better lighted—many workmen better sighted. Sherwin-Williams Save-Lite diffuses artificial and natural light evenly, and to the greatest degree.

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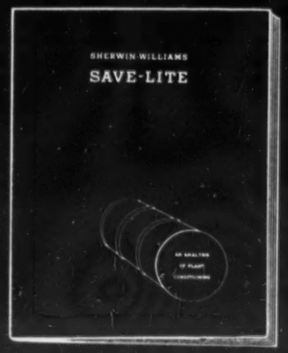
THE PLANT CONDITIONING PAINT

THE SHERWIN-WILLIAMS COMPANY, CLEVELAND, OHIO, AND ALL PRINCIPAL CITIES

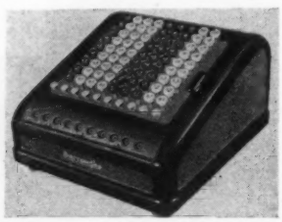
SEE THE SHERWIN-WILLIAMS PAINTING ENGINEER

Write for the Sherwin-Williams Plant Conditioning report. Every plant operator should have it. It will be sent FREE on request.



Burroughs Announces Re-Designing of Register Calculators

Burroughs Adding Machine Company, offices in all large cities, has announced the re-designing of its line of single-register calculators; the new type of construction affects improvements in both the appearance and the operation of the calculators. In the general appearance, the calculators



Single-register calculator

have been streamlined. Crystal panels and glossy enamel trimming replace the former all-crystal finish. On the operating side, the changes have brought about higher speed and greater ease of operation. Simplified electric subtraction is an outstanding advantage of the new line of Burroughs machines.

American Textile Directory

McGraw-Hill Publishing Company, 330 West 42nd Street, New York City, has made available the "Official American Textile Directory", which includes numerous changes and improvements and the addition of 100 pages of information. The mill section lists geographically (by states and towns) the textile mills of the United States and Canada with such information for each as names of officers and operating officials, equipment, products, and sales outlets. Classification of mills by branches of industry is clearly indicated by key letters in the upper right hand corner of each entry. The yarn buyers' guide and processing sections have been enlarged and subdivided for greater usefulness. There is also the usual alphabetical list of mills by company or mill name. The size and weight of this new edition adapts it equally well to use in the office or the field.

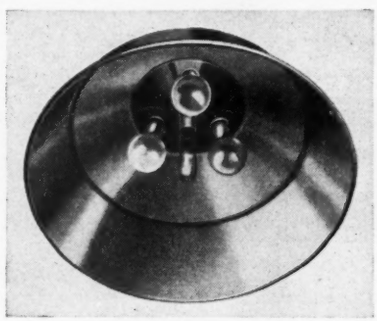
Low Capacity Regulator

The DeVilbiss Company, Toledo, O., has announced a new low capacity regulator, type HFS, that is designed for the sensitive regulation of air pressures below 30 pounds. The 4-inch diameter diaphragm of the new regulator provides a sensitivity approximately 6 times greater than their regular standard type regulator, the effective area of whose diaphragm is generally 1½ inches in diameter. Regulated air pressure on the new type HFS regulator can be graduated up to 30 pounds with but one ounce variation for each 10 pounds of variation on the mail line pressure.

Combination Mercury-Mazda Lighting Units

Westinghouse Electric and Manufacturing Company, East Pittsburgh, Pa., have announced, for industrial lighting where color correction is necessary, a combination 250 watt mercury-mazda lighting unit. Designed for mounting heights of 8 to 18 feet, these units mix the light lumens of the mazda with the mercury lamp to give the required color correction.

Two distinct circuits are used, one to control the mercury lamp and one to control the Mazda lamps. The design is such as to allow three 60-watt, three 75-watt or three 100-watt Mazda lamps to be used without interfering with the restarting of the Mercury



Mercury-Mazda lamp

lamp in case of a voltage interruption.

The unit consists of an aluminum reflector, with socket assembly and a monax diffusing hinged glass bowl. The reflector is made from 14 gauge commercially pure etching grade aluminum sheet. The entire surface is Alzaked for greater permanence and ease of cleaning.

The entire socket assembly which consists of three medium sockets for the Mazda Lamps and one socket for the Mercury Lamp is attached to the top of the reflector. A slip type louvered cover provides sufficient ventilation for the sockets and allows for wiring or inspection of wiring after the reflector is in position. It is arranged for mounting on ½-inch conduit. The diffusing bowl is banded at the fitter and hinged in the reflector. A felt gasket provides a suitable joint between the glass and the reflector. The entire assembly is simple to wire and the hinged glass bowl provides for quick and easy access to the lamps, and eliminates the hazard of removing large globes. Sufficient ventilation is provided to keep the temperature within safe operating limits.

Humidity Control for Air Conditioning

Supreme Electric Products Corporation, 79 Mt. Hope Ave., Rochester, N. Y., has published leaflet No. 3820 that shows a new item for use in the air-conditioning field, a simplified humidity control consisting of a Supreme solenoid water valve mounted on a Friez insertion humidistat. As contact-making humidistats usually require a solenoid water valve to turn on and off the water supply as determined by the humidistat, many advantages are said to be secured by combining these two items for mounting as one unit. The electric valve used in the unit is especially designed for humidity application, having a cast iron case with terminal chamber for BX connections. The humidistat is manufactured by Julien P. Friez & Sons, Inc., Baltimore, Md., and the valve is manufactured and assembled as a complete unit by Supreme Electric Products Corporation. If preferred, the parts may be secured separately and assembled at destination.

Data on Rockwood Drives

Rockwood Manufacturing Company, 1801-2001 English Ave., Indianapolis, Ind., have made available literature on the Rockwood single-grooved v-belt drives and multiple-belt drives. These data are in the form of booklets and are presented in such a manner that it is simple to select a drive. The booklets are illustrated and contain valuable tables for the engineer and superintendent. List prices are also given.

New Spool Guides

Lestershire Spool & Manufacturing Company, Johnson City, N. Y., manufacturers of spools for the textile industry for over 30 years, have announced a new line of guides and

Spool guides made of Nitralloy steel which reduce friction by use of roller.

cleaners which are claimed to materially reduce yarn damage and result in economy and an improved yarn quality. The new line is made of a special steel called Lesterized Nitralloy Steel, which has been developed to resist wear, it is said. Friction is also reduced by a roller. Lestershire guides and cleaners are offered in the adjustable type or fixed type for any size opening desired.

Pick-up your phone ...and We pick-up your Shipment

... that is all that need be done to have your shipment, large or small — shipped swiftly, safely and economically **anywhere** by Railway Express. Prompt pick-up by a swift motor vehicle; "hurry-up" service on fast passenger trains; and speedy delivery to destination. Railway Express' 57,263 skilled employees and 23,000 offices are ready for instant action when you pick up your 'phone. Free insurance up to $50 covers every shipment and additional liability costs only 10 cents per $100 valuation. For service or information telephone the nearest Railway Express Agent.

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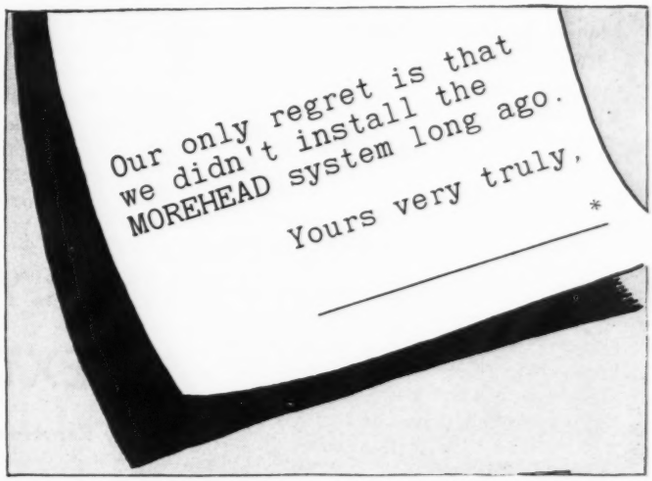

*NAME ON REQUEST

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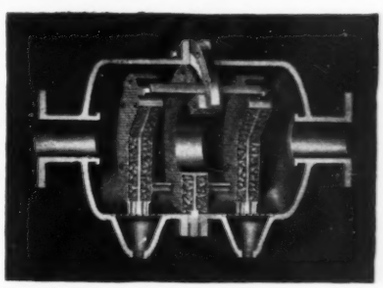
IF YOU USE STEAM YOU NEED MOREHEAD

The operation of a Morehead Back-to-Boiler System is simple and efficient. It performs two essential functions that end losses which are ordinarily unnoticed.

- **It thoroughly *drains* all steam heated apparatus, increasing production and improving the quality of the product.**
- **It returns all condensate *directly* to the boiler under pressure at original high temperature, assuring substantial fuel savings.**

NOW YOU CAN REALLY PURIFY EXHAUST STEAM

The new Morehead Exhausteam Purifier combines *all* steam-cleansing and drying principles in a single, compact unit, assuring *complete* purification ... sharp reduction in fuel costs. Check coupon for details.



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Dept. C Detroit, Michigan

Without obligation, send me detailed information on
☐ Morehead Back-to-Boiler System ☐ Morehead Exhausteam Purifier

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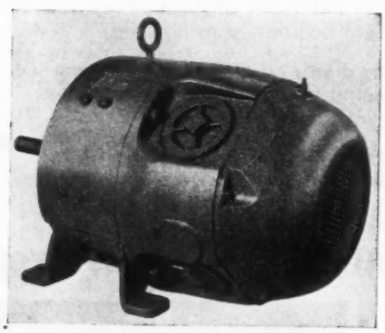
Manual by Dayton Rubber

The Dayton Rubber Manufacturing Company, Dayton, O., has made a wide distribution of the 1936 manual on Dayton cog-belt drives for industrial distributors, entitled "The ABC's of V-Belts". The manual consists of 80 pages, the title of which gives an idea of the treatment of the theme, but it may be digested in 30 minutes. The first part of the book tells the construction story, which is handled in primer fashion with many pictures and brief text. The second part of the manual points out the market for the Dayton cog-belt drives and shows over 200 pictures of a wide variety of actual installations, alphabetically arranged by industries. The purpose of this manual is to give industrial distributor salesmen a concise program which will enable them to locate quickly the market and present their sales story in the shortest possible time.

Explosion-Tested, Fan-Cooled Motors

Westinghouse Electric and Manufacturing Company, East Pittsburgh, Pa., have announced a new and improved design of Westinghouse type SK explosion-tested, fan-cooled, totally-enclosed, direct current motors. Available in sizes from five to seventy-five horsepower and 115,230 and 550 volts they are designed for use in locations where explosive gases or dust may exist.



Totally enclosed motor

The brushes and commutator are readily accessible and the motor is designed with the fan on the commutator and so that a gear case, coupling, or pulley will not restrict ventilation. Accessibility is obtained by the use of a double walled bracket on the commutation end. This bracket is equipped with hand-hole covers which are readily removable to permit inspection and adjustment of the brushes and commutators.

Type SK explosion-tested fan-cooled motors are designed, built and tested to withstand an internal explosion of gas (methane) or coal dust without injury to the equipment and without emitting flames or sparks which would ignite surrounding gas.

The presence of a fan on the commutator end forcing a large volume of cooling air through properly located air passages makes possible high continuous capacity with minimum size. Due to the unique design of the double walled bracket, mounting the fan on the commutator end is accomplished without interfering in any way with the accessibility to the brushes and commutator.

TIMELY NEWS ITEMS WITH A TEXTILE SLANT . . . .

Anthony Represents Klumpp-Glynn

William S. Anthony, Touisset, Mass., has been appointed by Klumpp-Glynn & Company, Philadelphia, Pa., to serve their New England accounts in the states of Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, and Connecticut. Klumpp-Glynn & Company are cotton yarn consultants.

April and Textile Exposition in Greenville Not Far Away

The directors of the Southern Textile Exposition, which will be held April 5 to 10 inclusive, 1937, have sent literature to the master mechanics of all American textile plants reminding them that the Exposition is not far off and that there will be special features to interest the master mechanics. Many things connected directly and indirectly with the power and mechanical equipment of factories will be displayed. The officials of the Exposition also announced that April 9 will be known as "Southern Textile Association Day". The members of the Southern Textile Association conceived the idea of the Exposition, so it is especially fitting that that day be set aside in cognizance.

Burroughs Exhibits Modern Payroll Machines

Burroughs Adding Machine Company exhibited at the 1936 National Business Show modern payroll machines and methods of the types being purchased in many states because of social security legislation. The exhibit included all of the latest Burroughs developments of interest to employers. A headline attraction for employers was the new typewriter calculating payroll machine which calculates earnings, deductions, and net pay, making a record of all of these items at one operation and writing the employee's check as a by-product. The Burroughs exhibit covered 5,000 square feet of floor space and accommodated a selection of more than 100 models from its line of over 500 figuring machines, accounting machines, typewriters, etc.

Acme Colorstrip

Acme Steel Company, general offices at 2847 Archer Ave., Chicago, Ill., have released the new Acme Colorstrip—cold rolled strip steel in colors. It is said that almost all of the colors and shades can be produced. The Colorstrip is said to withstand bending, drawing, and forming. This departure of coloring from the old method is believed to have an important bearing on product cost which has had to be colored after forming. This expense will be avoided with Acme Colorstrip.

PUBLISHER'S STATEMENT

of the ownership, management, circulation, etc., required by the act of Congress of March 3, 1933, of COTTON, published monthly at Dalton, Ga., for October 1st, 1936

State of Georgia, County of Fulton.

Before me, a Notary Public in and for the State and County aforesaid, personally appeared W. J. Rooke who, having been duly sworn according to law, deposes and says that he is the Business Manager of COTTON, and that the following is to the best of his knowledge and belief, a true statement for the date shown in the above caption, required by the Act of August 24, 1912, embodied in Section 411 Postal Laws and Regulations, printed on the reverse side of this form, to-wit:

1. That the names and addresses of the publisher, editor, managing editor, and business manager are: Publisher, W. R. C. Smith Publishing Co., Atlanta, Ga.; Editor, R. W. Philip, Atlanta, Ga.; Business Manager, W. J. Rooke, Atlanta, Ga.

2. That the owners are: W. R. C. Smith Publishing Co., Atlanta, Ga.; W. R. C. Smith Atlanta, Ga.; W. J. Rooke, Atlanta, Ga.; W. S. Cushion, Cleveland, Ohio; O. A. Sharpless, Atlanta, Ga.; J. C. Martin, Atlanta, Ga.; T. W. McAllister, Atlanta, Ga.; E. W. O'Brien, Atlanta, Ga.

3. That the known bondholders, mortgagees and other security holders, owning or holding 1 per cent or more of total amount of bonds, mortgages, or any other security holders are: None.

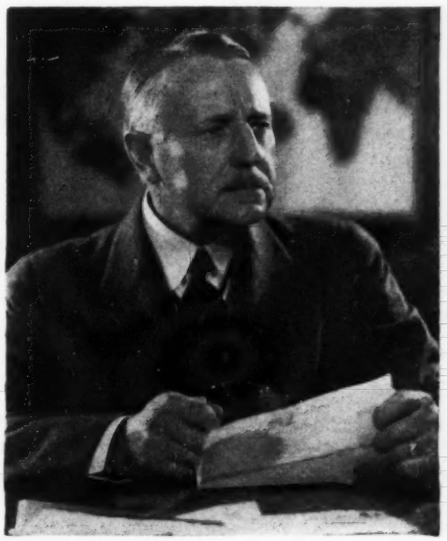
4. That the two paragraphs next above giving the names of the owners, stockholders and security holders if any, contain not only the list of stockholders and security holders as they appear upon the books of the company, but also, in cases where the stockholders or security holders appear upon the books of the company as trustees or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stock holders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bonafide owner and this affiant has no reason to believe that any other person, association or corporation has any interest direct or indirect in the said stock, bonds or other securities than as so stated by him.

W. J. Rooke, Bus. Mgr.

Sworn to and subscribed before me this 1st day of October, 1936.

E. L. PHILPOT, Notary Public.

My commission expires March 7, 1939.



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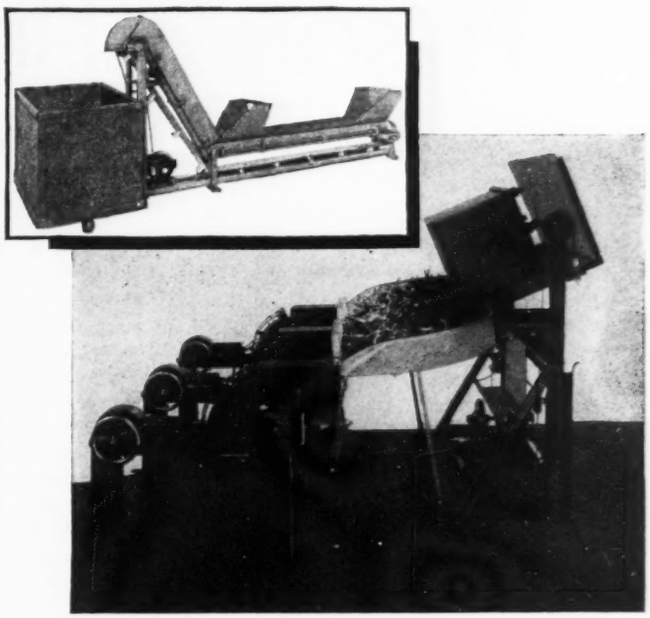

Another Mill Saves $1,200.00 *a Year*

A REPORT has recently come to us covering the installation of our new Bobbin Box Hoist and Conveyor Elevator (both illustrated above). These two accessories were attached to the two Type K Bobbin Stripping Machines which were being used by the mill in question, and which were already saving them a gratifying sum every year.

Through the installation of these accessories, this mill is saving $24.00 a week, or $1,200 a year, which represents a handsome return upon the investment.

Whatever your system for cleaning bobbins may be, or whatever kind of machines you might have, there are great possibilities of savings by bringing your equipment up to date.

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PERSONAL NOTES
about Men You Know

SIDNEY P. MUNROE, a graduate of Lowell Textile Institute in the class of 1912, who has been assistant to the president of the Cotton-Textile Institute since 1931, has become the director of the cost department of Wellington Sears Company. Mr. Munroe has had wide training in mill work, having served his apprenticeship at Chicopee (Mass.) Manufacturing Company, was assistant superintendent of the Merchant Manufacturing Company, Fall River, Mass., assistant superintendent Wamsutta Mills, New Bedford, Mass., and was manager for Ralph E. Loper & Company, Fall River, Mass. Mr. Monroe is located at the New York office.

Mr. Munroe

L. A. HAMER, formerly superintendent of Tucapau (S. C.) Mills, which are now the Startex Manufacturing Company, resigned his position to become superintendent of the Cowpens (S. C.) Manufacturing Company, succeeding W. G. DAY, who returned to Clemson Textile School as instructor; RICHARD CARR has succeeded Mr. Hamer as superintendent at the Startex Manufacturing Company.

WINFIELD H. DENNETT has been made superintendent of the cotton mill of the Iowa State Penitentiary, leaving Three Rivers, Mass., where he formerly was employed.

RAYMOND C. COLLINS has been elected vice-president and general manager of the Collins Loom Works, Inc., Amsterdam, N. Y.

A. E. BRISTOW, formerly of Laurinburg, N. C., has become superintendent of the carding and spinning divisions of the Ida Mills, Laurel Hill, N. C.

JOHN A. BAUGH, JR., Cherryville, N. C., has been made general manager of Marlboro Cotton Mills, McColl, S. C. Mr. Baugh was at one time with Callaway Mills for several years, and more recently agent of Manville-Jenckes Co., (now Firestone Cotton Mills) Gastonia, N. C.

GEORGE R. MURPHY, superintendent, Asheville (N. C.) Cotton Mills, has been elected treasurer of the company to succeed the late M. D. LONG. Mr. Murphy will continue to act as superintendent also. CLARENCE N. CONE, assistant superintendent of this mill, has become a member of the executive staff of Proximity Manufacturing Company, Greensboro, N. C., as assistant to HILL HUNTER, secretary and general manager. Mr. Cone is succeeded at the Asheville Cotton Mills by L. HOLMES, Tabardrey Manufacturing Company, Haw River, N. C.

WARREN D. BREWSTER has been elected treasurer and a director of Deering, Milliken & Company, New York, to succeed the late HENRY MAXWELL.

JOHN G. WEBB has been made southern representative for The L. M. Hartson Company, North Windham, Conn., manufacturers of Lucas underclearer rolls, textile porcelains, flyers, bobbins, tubes, quills, and lingos for Jacquard looms, etc.

C. E. BAILES, formerly purchasing agent for the Kendall Mills, headquarters at Paw Creek, N. C., has become associated with the McLeod Companies, Greensboro, N. C., operators of mill supply houses.

J. A. BAUGH has been made overseer of carding and spinning at the Bamberg plant of Santee Mills, Orangeburg, S. C., and J. M. SIMPSON, formerly with Hillside plant, Callaway Mills, LaGrange, Ga., is overseer of weaving at the Orangeburg plant.

H. P. WALKER, who was graduated in textiles at Clemson College in 1924, has been transferred from the Springstein Mill, Chester, S. C., to overseer of spinning, Springs Mill, Fort Mill, S. C. E. L. HEAD also a Clemson graduate, been promoted to night overseer of spinning at the Springstein Mill.

B. K. SHARP, textile graduate of Clemson College, 1934, formerly with the Victor-Monaghan Mill, Greenville, S. C., has accepted a job as assistant to the superintendent, Calhoun Mills, Calhoun Falls, S. C.

J. M. BLACKMAN has been made overseer of dyeing at the Mace Manufacturing Company, Randleman, N. C. Mr. Blackman is a graduate of Clemson College in textiles.

HARRY CARTER, formerly of the Cascade Rayon Mills, Mooresville, N. C., has been made superintendent of the Blue Ridge Rayon Mills, Altavista, Va., succeeding K. H. BOYDELL, who has become superintendent of the Reidsville (N. C.) Rayon Mills.

GEORGE I. ROUNDS, who has been in charge of the New England office of the Industrial Rayon Corporation, has been transferred to Charlotte, N. C., as manager of that office which serves South Carolina, southern and western North Carolina. He succeeds the late BRUCE GRIFFIN.

L. D. RICHARD, formerly overseer cloth room, Martel Mills, Batesburg, S. C., has accepted a position at Martinsville, Va.

CHARLES JONES, who has been with the Highland Park Mills, Rock Hill, S. C., has become overseer of carding at the Fort Mill (S. C.) plant No. 2 of Springs Cotton Mills, succeeding J. R. FENNELL, resigned.

M. J. HENEGAR has been made superintendent of spinning and winding at the Cherokee Spinning Company, Knoxville, Tenn. A. E. WHALEY is overseer of these departments.

J. O. KING, formerly overseer weaving, Werthan Bag Corporation, Nashville, Tenn., has become overseer weaving at the John P. King Manufacturing Company, Augusta, Ga.

L. M. KINCAID, who has been master mechanic for some years at the National Weaving Mills, Lowell, N. C., has been made master mechanic at the Thrift plant, Kendall Mills, Paw Creek, N. C., succeeding F. D. HADLEY, who has been transferred to the same position at the Mollohon plant of the Kendall Company, Newberry, S. C.

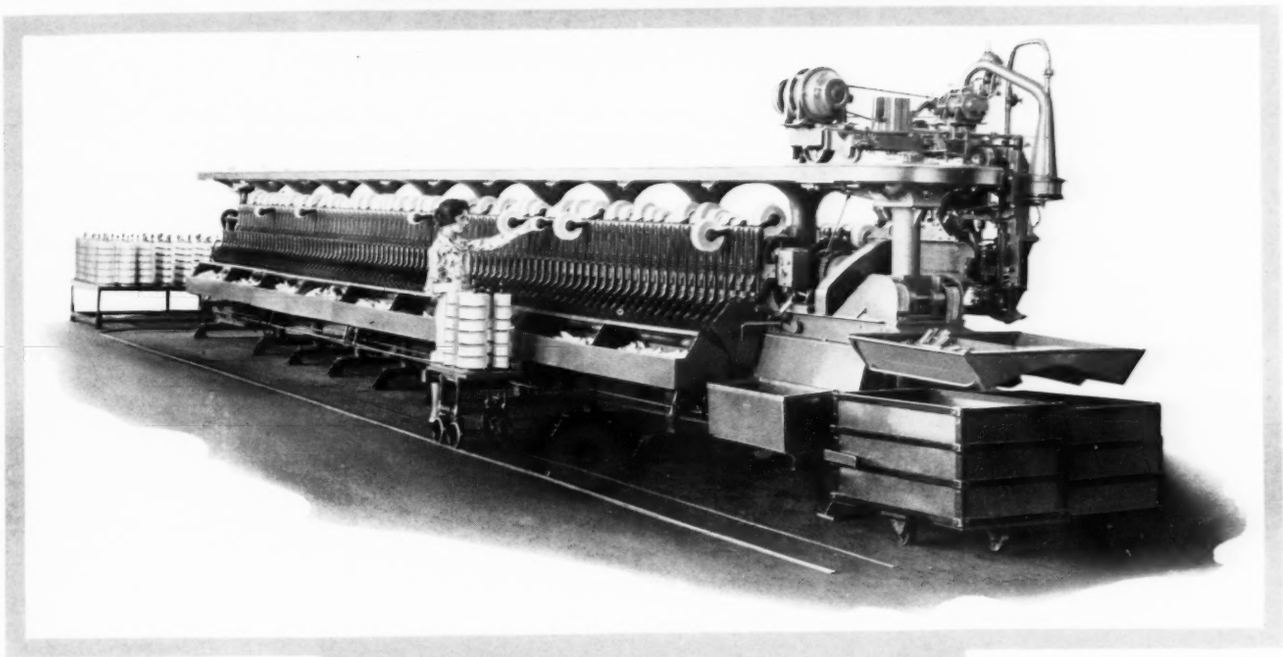
U. D. SNIDER, Judson Mills, Greenville, S. C., has become overseer weaving at the Drayton Mills, Spartanburg, South Carolina.

A. B. SIBLEY, superintendent, Hartsville (S. C.) Cotton Mills, has been made superintendent of the Darlington (S. C.) Cotton Mills also.

J. W. OLIVER, formerly assistant overseer of weaving, Hillside plant, Callaway Mills, LaGrange, Ga., was recently transferred to the company's Calumet Hogansville plant, Hogansville, Ga., as overseer of weaving.

Additional personals on page 98.

The AUTOMATIC SPOOLER



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THE BARBER-COLMAN SYSTEM

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SPOOLING AND WARPING COSTS

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THE AUTOMATIC SPOOLER IS EXCLUSIVELY A PART OF THE

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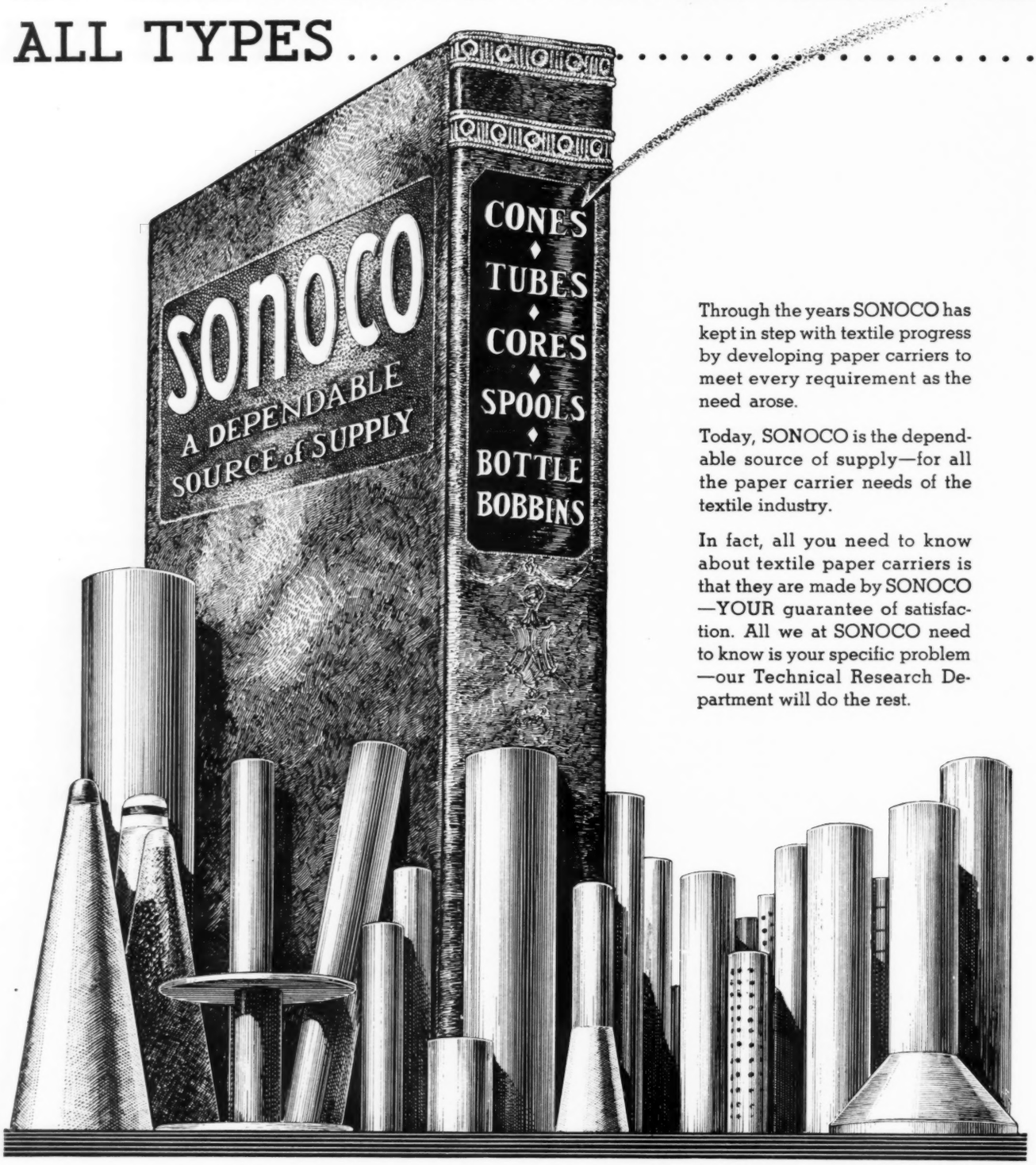

Through the years SONOCO has kept in step with textile progress by developing paper carriers to meet every requirement as the need arose.

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In fact, all you need to know about textile paper carriers is that they are made by SONOCO—YOUR guarantee of satisfaction. All we at SONOCO need to know is your specific problem—our Technical Research Department will do the rest.

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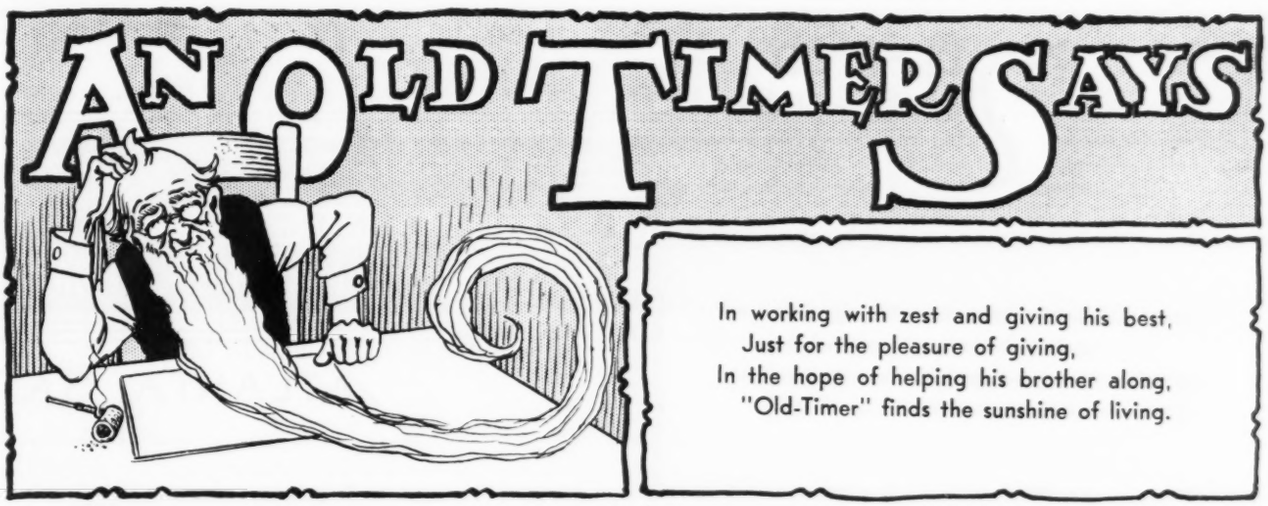
AN OLD TIMER SAYS
In working with zest and giving his best,
Just for the pleasure of giving,
In the hope of helping his brother along,
"Old-Timer" finds the sunshine of living.

"Eight-Story Men—Forty-Story Buildings"

A STRANGE FREAK of human nature is that most of us seem to set up resistance to new ideas. Most history brings out this fact that even down to the man who was a maker of wheel-barrows was opposed to the man who invented the hand-cart and naturally the makers of wagons and buggies were very much opposed to the motor-car manufacturers.

Another reason for most of us being opposed to new ideas is that most people are mentally lazy, that is, it is very difficult for them to change their minds. Old ideas require no mental effort. In fact, old ideas are carried out mostly as a result of habit forming. Most people do not understand what new ideas are. If you present a new idea to most superintendents or overseers, they at once resent it because they seem to have a feeling that it shows them up as ignorant, while as a matter of fact it does nothing of the kind.

During all of these years OLD-TIMER has been pounding at our readers in regard to study courses, constructive reading and anything he could think of to cause you to improve your mind. He has realized one fundamental fact, that it was necessary to overcome, that is, that once a man is out of school it is human nature for him to object to being taught, while as a matter of fact all business men should remain students all of their lives.

Someone has said that, "The truth is always on the scaffold". I am going to change this by saying that "New ideas are always on the scaffold and the great majority of people are trying to pull the trap."

It would seem a very easy matter to present a new idea to people if that new idea could cause them to make more money or to make the same kind of money more easily, but such is not the case. New ideas have to be forced on all people. Any new idea is usually looked upon with dislike by all lazy minds. A man who is an eight-story man can never appreciate a forty-story building.

◆◆

SUPPOSE you have an opportunity to put a young man on to learn to fix looms, to grind cards or to run a section in the spinning room. You call up two of your operatives and after explaining your proposition, one of them replies, "I shore want that job. I ain't gwine to run looms all my life." The other young man stands up and replies to your proposition in an intelligent manner, showing that he not only has had some education but that he is fairly versed in textiles, having read the current textile magazines and possibly having taken a correspondence course, etc.

Is there any reason to explain to you which one of these men you will give the job? That question is so simple, I will admit, that it sounds rather foolish, but here is a question along the same line that possibly you had not thought of:

Suppose a large firm writes you that they have an opening that would pay you practically $1,000 a year more than you are making and invite you to come to see them. After you have accepted this invitation, returned home and after a reasonable length of time not having heard from that firm any more, do you suppose that they hired a man that made a better impression on them for the same reason that the young man made a better impression on you when you were going to promote someone to section man? Take an old-timer's advice and start that study course we have been trying all these years to get you to start.

In the Mail Bag

OLD-TIMER is always glad to hear directly and personally from his readers. It encourages him, and gives him an opportunity to render aid specifically. Recently, the following letter came from one of "his boys":

DEAR OLD-TIMER:

For many years I have thought of writing you a few words of appreciation for assisting me so much when I finished college.

I have been a constant reader of COTTON for about 12 years, and have always read with much interest the OLD-TIMER articles.

Although I have not yet reached any high pinnacles in the mill business, and am not drawing a handsome salary, still these facts do not keep me from appreciating your kindnesses and the many thoughts and the inspiration you have given me.

If you have something you want to tell OLD-TIMER, write to him in care of COTTON. Your identity will be kept confidential, and OLD-TIMER will be glad to have your comments.

THE EDITOR.

◆ ◆

SEYDEL-WOOLLEY CO.

SIZING FINISHING

WARP SIZING SPECIALISTS

SCIENTIFICALLY PREPARED TEXTILE CHEMICALS

A COMPANY IS KNOWN BY THE CUSTOMERS IT KEEPS—

TEXTILE CHEMICALS

ATLANTA, GA.

THE MOST MODERN EQUIPMENT FOR THE TEXTILE INDUSTRY

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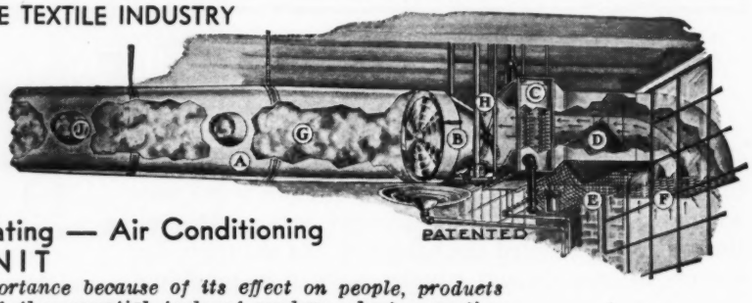
BAHNSON HUMIDUCT



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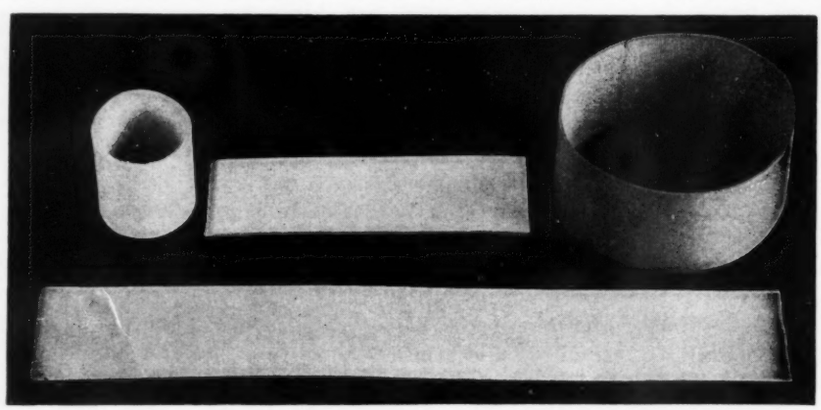


CLINTON STARCHES

FOR ALL TEXTILE PURPOSES

Manufactured by

CLINTON COMPANY

CLINTON, IOWA

QUALITY SERVICE

HOW OTHER MEN MANAGE

Practical Discussions by Cotton's Readers On all Varieties of Mill Subjects

Discusses Slashing-Weaving Questions Used at Georgia Meeting

EDITOR COTTON:

I have read your report of the meeting held at Georgia Tech on September 19 by the Textile Operating Executives of Georgia, that appeared in the October issue of COTTON.* Not being able to attend, I would like to discuss a few of the questions and give my ideas on them.

One of the questions dealt with the mixing of size and asked at what point should the softener be added to secure the best results; also, should this ingredient be added with the others when the mix is cold, or should it be added later after the mix has been brought to a boil? We have discussed this question with several well-posted starch men, and their opinion seems to be that a better breaking up of the starch granules can be secured if the softener is added just as the mix is brought to a boiling temperature. We tried this over a period of time and studied the results in the weave room, but we could see no definite improvement due to this change. We find it more convenient to add all the ingredients at the same time that we are making the mix.

Another question: *"What are your cooking periods with respect to length of time required to bring to a boil; length of time of boiling; what is your cooking temperature? State your local conditions."* We require 20 minutes to bring the mix to a boil, and we boil for one hour at 212 degrees F. We have a semi-circulating system in which we try to maintain uniform temperatures throughout. Our size boxes are filled from hand-operated valves taking the solution direct from storage kettles at 210 degrees F.

"What results can be secured by the use of a variable speed drive on slashers?" There are several decided advantages to be gained by using this device in preference to the old cone and belt drive. Some of the main advantages are as follows: Elimination of cones and cone belt slippage; addition of a positive drive and low speed; wider range of speed variation with only a few seconds required to secure same. By using this device we are able to vary from 3½ yards per minute to 22 yards per minute. This within itself and the ease with which the speed changes can be brought about result in a slight increase of production. Summing up, we would say that the variable speed is an advantage from the standpoint of both quality and production.

*It has been the policy of COTTON to suggest that those interested in the questions discussed at the various associational meetings contribute further to the discussions through the "How OTHER MEN MANAGE DEPARTMENT" of this paper. Often a man cannot attend the meeting but wishes to express his experiences on the questions for the benefit of those that have already given their opinions, or a man may prefer to run certain tests before giving a conclusive answer. These answers may be sent to this paper for use in the discussion department.—THE EDITORS.

WE invite our readers to make use of this department for the discussion of any and all problems arising in the mill or finishing plant. Questions, answers or letters need not conform to any particular style and will be properly edited before publishing. The editors do not hold themselves responsible for any statement of opinion or fact which may appear in this department unless so endorsed. This department is open to all.

◆ ◆

Broken Filling on the Change

"What causes broken filling on the change?" The most frequent cause of this trouble with which we are familiar is the shuttle going too far under the battery which causes the butt of the quill to strike too high up on the quill spring in the shuttle with the result that the tip of the quill is depressed below the center line. This tends to bind the filling as it leaves the quill causing same to break. There are numerous other causes of this same trouble among which are improper timing of the lay with the transfer motion on the battery, worn rocker shaft bearings, and loose pitman arms. Another point which deserves watching is the manner in which the battery hand inserts the quill into the battery and wraps the end on the filling knob. Bad quills are also a cause for filling breakage on the transfer, and should the tips of the quills become rough, they are a continual source of trouble. Failure of the shuttle eye to thread properly and improper alignment of the shuttle with the battery as the transfer takes place frequently cause the filling to break.

"What causes ropy filling?" The main cause of this condition which we know is that there is a faulty builder motion or improper lay on the spinning frame. When the filling is wrapped too loosely on the quill, there is always a tendency for sloughing, and this is increased after the quill is put into the shuttle on the loom, due to the continual jarring as it goes back and forth in successive picks.

"Does conditioning the filling help to eliminate broken filling and ropy filling?" Conditioning the filling is primarily used to set the twist. It may tend to slightly increase the strength of the filling, but, if anything, we believe it will tend to increase ropy filling as ofttimes moisture will cause soft-twisted stock to expand and to become looser on the quill.

CONTRIBUTOR NO. 6588

Taper Gearing for a Roving Frame

By Fay H. Martin

THE author returns to our columns with this clear interpretation. He is recognized universally as an expert on roving frame design and operation, and we are glad to add this to the previous articles pertaining to this operation (*) that we have published during recent years . . . . . .

TAPER GEARING is a little-thought-of train of gears on a roving frame. Very seldom, if ever, is the taper gear changed, but it is well to know how this train is figured.

Off hand, one would say that the cone belt rack drives the taper gear, and so it does, but its movement starts with the top cone which drives the contact shaft then through the tension gearing train to the rack and then to the taper gearing train proper.

The taper on a bobbin of roving is governed almost entirely by the kind of cotton being run and the processes that the cotton has been through before it gets to the roving frames. Combed cotton calls for a steeper taper than carded cotton does, for combed cotton is slippery and it "shells over" on the taper. Also, the condition of the roving frame enters into the problem; if the frame is slow in reversing there will be a dwell and a steeper taper is required, but the best way to overcome that is to fix the frame and take out the dwell.

It is a well known fact that there is more cotton on a bobbin with a flat taper than there is with a steep taper, so it is advisable to run as flat a taper as the condition of the cotton and the frame will admit.

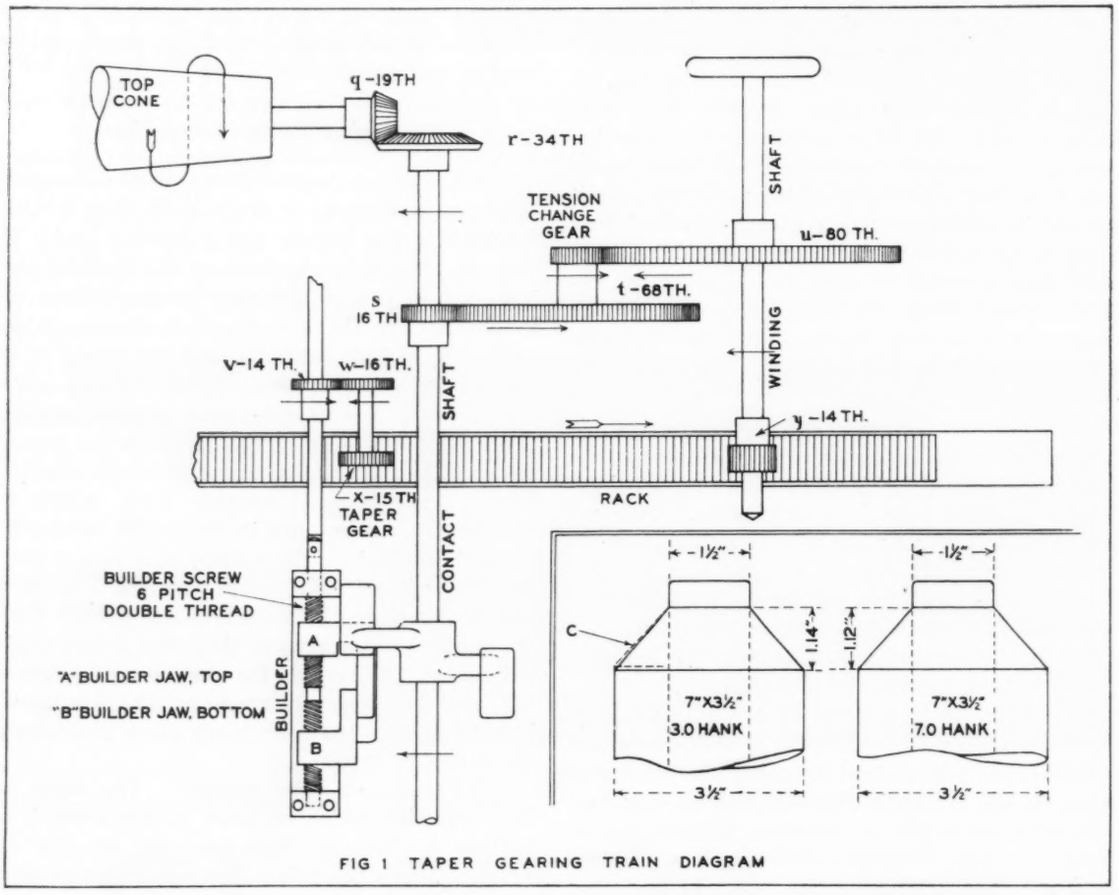


FIG 1 TAPER GEARING TRAIN DIAGRAM

To obtain a flat taper it is necessary to change the taper gear and put on a larger one in its place, because the taper gear is a driven gear and driven by the rack. With this larger gear the builder screw will turn slower thus making a flatter taper.

The taper gearing train shown (Fig. 1) is taken from a Woonsocket 7 x 3½ frame.

The symbols or letters and the number of teeth in the gearing are as given in the "Woonsocket" Roving

*Previous articles by Fay H. Martin, published in COTTON during recent years, follow:
Roving Frame Cones, page 82, May, 1932.
The Compound as Applied to Cotton Roving Frames, page 80, June, 1932.
Roving Frame Tensions, page 71, August, 1933.
(A set of reproductions of these three articles may be secured at a nominal cost.)
Others include:
Bobbin of Roving Analyzed, page 77, November, 1934.
Pressure of the Presser, page 85, December, 1934.
The Hyperbola Curve, page 78, June, 1935.
A series of articles covering the various elements of the roving frame in a clear and comprehensive manner, appeared as follows:
Draft, page 79, July, 1935; Twist, page 79, August, 1935; Lay, page 90, September, 1935; and Tension, page 84, November, 1935.
(If the demand for copies of this series is sufficient, they will be reproduced in pamphlet form and made available at a nominal charge.)

Frames (1925) catalog. While the gearing may be different, the principle applies to all so-called "American frames." Also there is a variation in the gearing on different size frames of the same make. The calculation for the taper on a bobbin of roving is as follows:

A 7 x 3½ roving frame has a range, with its regular gearing, for making roving from 3.00-hank to 7.00-hank inclusive. That being the case we will use for an example two calculations, one for 3.00-hank and the other for 7.00-hank, thus showing the extremes.

The letters or symbols used are as follows:

S	Contact shaft gear.
T	Tension intermediate.*
CH	Tension change gear.
U	Winding shaft gear.
Y	Winding shaft pinion.
Rack	8 pitch gearing = .392-inch circular pitch
X	Taper gear.
W	Builder intermediate gear.*
V	Builder motion gear.
	Builder screw 6 pitch double thread.

*These are called intermediate in the list but they are not used as such.

In making the calculation for taper, one must find first the number of layers there are on a bobbin from the empty out to the full bobbin. They are *layers* when taken sideways and *lay* when taken lengthwise of the bobbin.

On a 7 x 3½ bobbin of 3.00-hank proceed as follows:

$$\frac{(\sqrt{3.00} \times 33) \times (\text{Dia. of full bobbin minus dia. empty bobbin})}{2}$$

(See article on Tension, COTTON, November, 1935, issue, page 84.)

$\sqrt{3.00} - 1.7321$
$1.7321 \times 33 = 57.159$
Dia. full bobbin = 3½-inch
Dia. empty bobbin = 1½-inch
$3\frac{1}{2} - 1\frac{1}{2} = 2$
$2 \div 2 = 1$
$57.159 \times 1 = 57.159$ layers
$57.159 - 1.159 = 56$ changes of cone belt to build the bobbin.
56 is used for the cone belt in its right position for the first layer.
For 7.00 hank proceed as above only use 7.00 in place of 3.00 hank;
$\sqrt{7.00} = 2.6458$ and the result, after figuring, is 87.311 layers which minus 1.311 = 86 changes.

The catalog says that a 39-tooth tension gear is used for 3.00-hank roving, and a 25-tooth for 7.00-hank. They may be more or less according to local mill conditions, so check up on the size of the gear.

Starting with 56 changes the "set-up" would be as follows:

$$\frac{\overset{7}{\cancel{56}} \times \cancel{8} \times 39}{\underset{9.5}{\cancel{38}} \times \underset{10}{\cancel{80}}} = \frac{273}{} = 3.2117$$

turns of winding shaft for 56 changes. 8 is used in place of 16 as the contact shaft only makes one-half of a revolution for each change or layer.

On the winding shaft is a 14-tooth gear in contact with the rack. This 14-tooth gear is 8 pitch or .392-inch circular pitch. One turn of this gear moves the rack 5.488-inch and 3.211 turns will move the rack 17.62-inch for 56 changes. The taper gear has 15 teeth 8 pitch or .392 circular pitch, $.392 \times 15 = 5.880$-inch, hence the rack must move 5.880-inch to turn this taper gear once around.

17.62-inch total movement of rack divided by 5.880-inch equals to 2.996 turns of the taper gear for 56 changes.

$$\frac{2.996 \times \overset{8}{\cancel{16}}}{\underset{7}{\cancel{14}}} = \frac{23.968}{7} = 3.424$$

turns of the builder screw for 56 changes. The builder screw is 6 pitch double thread, which is the same in movement as though it were 3 pitch single thread, hence one complete turn of the screw moves the top builder jaw "A" one-third of an inch or .333-inch downwards. The bottom builder jaw "B" moves up .333-inch at the same time. (See Fig. 1).

The top builder jaw governs the taper on the top of the bobbin and the bottom jaw at the bottom.

It was found as above, that the builder screw makes 3.424 turns for 56 changes, hence 3.424 turns multiplied by .333 equals 1.140-inch that the top builder jaw moves down during 56 changes, the bottom builder jaw moves up the same amount at the same time.

In Fig. 1 are the top portions of two 7 x 3½ bobbins, one of 3.00-hank, the other 7.00-hank, with the taper drawn to scale in correct relation, as per figured results. It will be noted the taper is very close to being the same on both bobbins, only .02-inch difference; it would never be discovered in practice, although one is 3.00-hank and the other 7.00-hank. The dotted line "C" shows where the taper would be if the taper gear were to be changed from a 15 to a 16 tooth gear, one tooth larger. One will note that the taper is flatter and the same amount will be on the bottom also, hence there will be more roving on a bobbin.

Prevents Wrong Twist in Spinning

EDITOR COTTON:

I have seen a good many spinning overseers corrected because some bobbins of yarn have been spun or twisted in the opposite direction than required. This fault is hard to detect in the spinning room or twisting room but very often shows badly after the cloth is woven and finished. It is caused by some careless bander putting the band on the wrong way.

In order to prevent this error, I believe it is wise to tint the bands and let each shift have a different color, such as blue for the first shift and red for the second shift. By using different colored bands, the bander will be more careful when replacing the bands because he will know that the work may be easily traced.

It is also a good idea to have the second-hand or bander run his finger on the bottom of each spindle in the entire spinning room each day. If he should find a band traveling in the wrong direction and putting in opposite twist, he should call the overseer and show it to him. CONTRIBUTOR NO. 6555

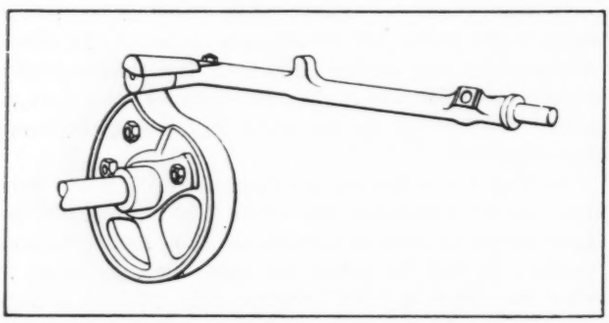
Setting Pick Levers Properly

This man takes the advice of three loom fixers and then forms his own opinion. How do you set your pick levers? . . . . . .

EDITOR COTTON:

The various ways one certain part of a loom can be set is surprising—or maybe I should say, the various ways different people set a certain part is surprising.

When I first started learning to fix looms I worked with a loom fixer, who, to my knowledge, never actually *fixed* a loom in his life. He patched and patched until he finally moved on to another mill. I guess he is moving and patching yet because he only stayed in one place until the job he was on ran down. As I began to say, I didn't learn to fix



looms; I learned to patch them any sort of way just to make them run. When I finally began to learn to do my work properly, I had to ask the method of several fixers and then choose from their methods the one I thought best. I will relate a few of these opinions of fixers concerning the method of putting in and setting a pick lever. Then I will give the method I decided upon.

When I asked the first loom fixer how he set a pick lever, he looked at me as though I were dumb and his expression showed that he thought "of all the foolish questions some people can ask." He replied, however, that he put in a pick lever so it would not bind and started the loom. I asked him if he ever had trouble with the loom slamming off—even if the lever wasn't binding. He said that he did, and that it was sometimes caused by the new pick lever giving too much power and causing the shuttle to bounce, and that at other times the loom just seemed to slam for no reason, whereupon he dropped the lug strap to give it a little more power; this forced it to run. When I asked him if he packed or filed his pick lever bearing so that the lever would not bind, he answered that packing was the easiest—so he packed them and they ran all right so far as he could see. I guess he had a right nice time when a bolt came loose or broke and his packing fell out. It would be rather hard to remember where he had packed the bearing, front or back, top or bottom, or maybe in two or more places, especially when we consider the number of bearings the average fixer has on his job. This man was getting behind on his little jobs—*patching up.*

I approached the second fixer a little differently—I asked him if he set his pick lever bearings as far to the front of the loom or as far to the back of the loom as he could (the slot for the bearing in the loom side allows about ¼- or ½-inch in moving distance from front to back and about the same distance from top to bottom.) This fixer said that he set his pick lever as far to the back as he could because he found it gave him a quicker stroke and consequently more power. He explained the "quicker stroke" by saying that the farther to the back of the loom that he set his bearings and lever, the sooner the pick point would contact the pick ball. I then inquired whether if by this method of setting he obtained a harsh pick or a smooth pick when the loom was running. He said that it seemed to run all right to him. Next I asked him how he set the bearings from top to bottom—that is, if he set the bearings as high as they would go or as low or just about the center of the slots. He explained that he set it so that the stop on the lever wouldn't bind against the loom side. This stop, as we all know, acts as a bumper for the lever; when the loom is running the pick point throws the ball upward with great force, and if this stop were not provided, the pick cap would be broken against the loom side. This one item alone would keep a loom fixer busy. By saying that he set his lever so that it wouldn't bind, (at its highest point) he meant that he filed or cut off part of the shoulder on the stop if he did not have enough clearance between the stop and the loom side.

On a loom that has been running a long time, the lever stop usually wears a hole or slot in the loom side, the amount of wear depending on just how the lever had been set to run in the past. The smaller the clearance between the stop and the loom side, the greater the wear. In his case, I presume that his job was practically the same as mine in that the loom side had worn somewhere between 1/16- and 1/4-inch. A loom side is usually as old as the loom because they are seldom replaced. Thus the fixer could in most instances set his lever so that it wouldn't bind by setting the lever nearer to the bottom of the slot than to the top. By this method of setting, he might achieve a correct setting and a correct pick one out of a hundred times. His loom may run seemingly all right and give apparently what is good service, still the setting is wrong, and he is using more power than he should—and we know that the more power on the pick, the quicker the wear is all over the loom. This means that he will have to replace the lever much sooner.

The third fixer's ideas concerning the setting of the pick lever were altogether different from that of the second fixer. He set his lever all the way to the front for more power. He cut all the shoulder off

his lever stop before he put it in the loom, and then he set his bearings as far to the top as he could get them, letting the clearance between the stop and the loom side be what it may. From the explanation of this clearance in the preceding paragraph, we can readily see that when he cut all the shoulder off the stop he probably had too much clearance even with a new loomside. This resulted in a number of broken pick caps.

To the reader, I may seem to be creating the impression that every fixer sets pick levers improperly; that isn't true. Each of the fixers had the levers set partly correct, as I saw it. What I finally decided as the best method did not conform rigidly with any of the methods but embraced what I considered the best points of each. Another point, before I give my method of setting pick levers, is that I have found pick levers that were not cast correctly and therefore could not be set correctly without filing—that is not the fault of the fixer and he should not be held responsible. Occasionally I have found the pick ball stud too long or too short. I never attempt to use a pick lever made thusly but return it to the supply room.

A new pick lever should be set to conform to the loom—no two can be set exactly alike on looms that have been running for some time; this is due to the looms wearing differently. First, I look to see what condition the cam shaft is in; then I notice the cam shaft bearing. If either or both are badly worn, they should be replaced because the clearance between the stop and the loom side will depend upon the amount of wear. Next I check the cam rim, pick point, and pick ball—all of which are determining factors concerning the clearance setting. I then bolt the shaft to the loom side and put on the pick ball and cap. I turn the loom over until the pick ball rests in the hollow of the pick point. The ball should rest so that it presents a flat surface to the point for the entire width of the point. This determines the distance to the front or back, top or bottom that the bearing should be set. In this manner the pick ball utilizes the entire surface, width-wise, of the pick point. It will wear the point evenly without undue wear on the heel or toe of the point. With this setting the pick ball will follow the cam rim evenly all the way around. I then turn the loom until the pick ball is at the highest point of the throw. The clearance here between the stop and the loom side should, I think, be about 1/16 to 1/8 inch. This setting is not too close to hold the pick ball against the rim too tightly or too wide to let it bounce around and cause undue wear either way. To get this clearance the shoulder on the stop has to be properly filed or cut away if it needs. The same is true concerning the pick lever bearings so that the shaft will not bind. I have had to take a pick lever out as many as three times to file it before it fit to my satisfaction. I believe it is better to file off a small amount each time than to file off too much and then be forced to pack under the lever.

CONTRIBUTOR NO. 6577

Answers Spinning Questions for "Contributor No. 6450"

Tells of experience with up-stroke and down-stroke beater . . . . . .

EDITOR COTTON:

I wish to submit the following answers to the questions asked by "CONTRIBUTOR NO. 6450" on page 107 of March COTTON:

1. How is the twist multiple figured? That is, how was the figure or method arrived at the first time?

This question will require a lot of "midnight oil" being used to give an answer that is satisfactory to this gentleman and at the same time not disturb those who think differently. The degree of twist put into yarn is determined by several factors such as breaking strength, staple used, production cost, appearance of yarn, local manufacturing conditions, purpose of yarn, etc. Usually warp yarn is required to be stronger than filling yarn, hosiery yarn, and other yarn specialties. There must necessarily be some distinctive method of identifying the twist to be used in the yarn just the same as there are other names used to identify persons, places, or things. I admit that I don't know how the term "multiplier" was first originated or why, but based upon experience, material read, and a bit of my neighbors' experience, I would reason it this way and maybe it will help others.

In June, 1933 COTTON published information furnished by 23 mills concerning spinning; it was interesting to note that even though many of the mills used the same machinery and were making yarn for the same purpose, they used different twist multiples; however, they all used the formula of the constant times the square root of the hank roving or number as the department called for.

One of the first methods of counting twists per inch in the yarn was to spin out two colors of the same hank roving into yarn and then count the turns of twist. This, however, did not control the twist, it merely created a way for counting it. A number of mills having certain local conditions use more or less twist than is set for a standard. I know a mill running a warp twist multiple of less than 4.50 and another only 15 miles away using a multiple of 4.90; both mills are using the same grade of cotton, making the same numbers, and weaving print cloths. They claim that they arrived at these particular twist multipliers by experimenting and testing for what was best for their conditions.

2. What is considered the best twist multiple for 30s warp yarn spun from 1 1/32-inch Middling western cotton to get best results in the spinning room and weave room?

I can give only a general opinion. This question could be more clearly answered if I knew what drafts were used in the carding and spinning, front roll diameter, spindle speed, and r.p.m. of the front roll on the spinning frame; also whether the cotton was well opened and well cleaned, condition of rings, spindles, humidity, yards per minute on warpers, method of

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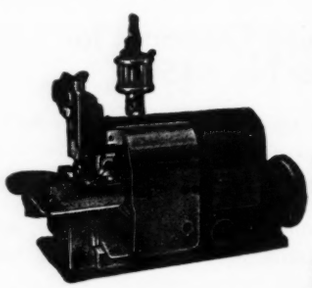

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slashing, size used, etc. But as I don't have all of this information, I will say that with all things equal, I would try a 4.50 multiplier. *However, I would only be interested in making the yarn right for the best weaving conditions.*

It is entirely possible to have fair running spinning at a low cost and not have a weavable yarn. This will work both ways, the weaver may get good work and yet have it "in" for the spinner or else be after the superintendent's job to such an extent that he will keep his weave room torn up and the help so dissatisfied that they will walk out in order to get what the boss weaver wishes. Now wait a minute; don't say that such things cannot or are not being done. I know only too well because I have had the experience once. When you or I or anyone else answer this question, let us not forget the human element involved.

Up-stroke or Down-stroke Beater

3. Which is best, the up-stroke or the down-stroke beater for cleaning results? Why?

The type of beater depends upon which process or section of the cleaning or opening it is in. Where possible in the breaker picker and in the opener room I prefer an up-stroke beater. Fig. 1 is a sketch of a machine having an up-stroke beater. When this machine was first built it did not work so well and the mill originally buying it sold it to my company for a fraction of its initial cost. I'll never forget that experience. We installed the machine in tandem with other machinery in the opening room. Monday morning came and starting time with it, but the new machine wouldn't work. The boss and I decided that the machine had become corroded or rusty on the inside and we would polish it. We put about a bale of picker motes and half the sand out of the river through the machine but still it would not work properly. Finally the superintendent said, "Well, you asked for it, you got it, now run it!" I fairly lived with that machine for the next 24 hours but I made it work and today that mill has added three other machines of the same type and they like them fine. However, they fixed the last three just as I did the first one.

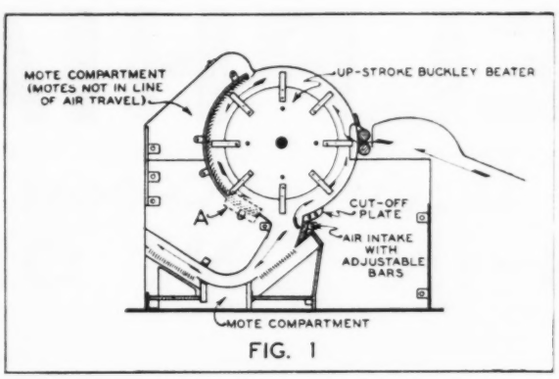

FIG. 1

Diagram of the up-stroke beater which the author had to "make" run.

By getting inside of the machine and using an electric light, I found that the air opening or cut-off plate was not set true to the beater and was too close. This necessitated the removal of the dowel pins, re-setting the plate, and boring new pin holes. On the front side I found that there were too many bars. This caused the air flow to be in direct line with the intake. The result was that the machine did not deliver and choked up. We remedied this by taking out 15 bars at the bottom and making a new steel plate wide enough to fill up the space originally used by the bars. It worked like a top on the next start-up.

The test showed that only leaf and dirt were removed from the stock in this machine and that we took out 7 per cent more on this machine than any other machine had previously removed. The cotton was fluffy, well opened, and our work ran better on the other processes supplied by stock from this machine than supplied by other machines which had a different type beater.

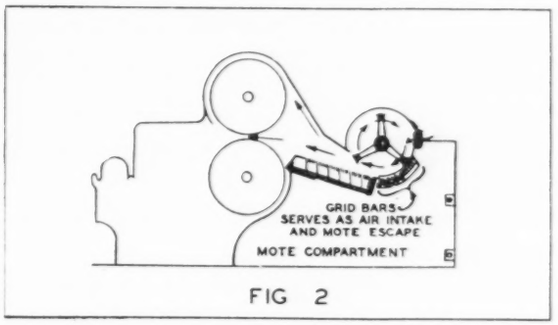

FIG 2

The down-stroke beater, which the author prefers on the intermediate and finisher section . . . .

Referring to the sketch, Fig. 1, it is easy to understand why this machine worked better. The arrows indicate the line of travel for both cotton and air. The air and cotton are drawn in together before the beating action begins. After the cotton reaches the bars, the foreign matter is beaten out and off into a compartment that is out of the line of the air flow. It stays where it falls until the machine operator cleans it out.

Looking at Fig. 2, showing a regular down-stroke beater, notice that the air is drawn into the machine through the openings between the bars and that is where the foreign matter is supposed to be forced or beaten out. This creates a paradoxical condition.

Now to answer the last "why" of "CONTRIBUTOR No. 6450", I would say that for cleanliness and opening I prefer the up-stroke beater on any process including the breaker picker on back through the opening equipment because I can best reach my objective with this type beater.

For the intermediate and finisher section I prefer the down-stroke beater because the cleaning and opening should already be accomplished and now it is a process of evening or making a smooth finished lap. This can best be accomplished by having the air and cotton leave the bottom edge of the beater together which sacrifices cleaning. For me it is the up-stroke for cleaning and opening and the down-stroke for evening and finishing.

CONTRIBUTOR No. 6462

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Keeping Cotton Accounts

Many mills have more than one warehouse, and not only run the cotton received through their plant, but buy and sell as the occasion demands. Here is given a clear and concise method of keeping a permanent check on all cotton handled by the buyer, warehouse, and opener room.

EDITOR COTTON:

Referring to the inquiry of "CONTRIBUTOR NO. 6559" on page 87 of the August issue of COTTON, which asks for a method of keeping cotton accounts and of checking on bales of cotton moving in and out of the cotton warehouse, I give here one method from which he may be able to get some pointers that will be of value in solving his problem.

FIG. 1

INVENTORY — B/C ON HAND

SHIPPER	INVOICE DATE	INV. Nº	MARK	Nº	WT.	DATE USED	INVOICE DATE	INV. Nº	MARK	Nº	WT.	DATE USED
				1						51		
				2						52		
				49						99		
				50						100		

REMARKS:

FIG. 2

Receiving the Cotton

Upon receipt of cotton at the mill, it is weighed in and tagged with a tag as represented by Fig. 1. The weight of the bale is marked on each of the two perforated sections of the tag; they are intended for removal in later steps.

For convenience of example, say there were 90 bales of cotton in the lot, and that the lot was moved into warehouse No. 3. The "No. 3" is marked on the tag along with the weight. As this lot is moved into warehouse No. 3, the end section of the tag is torn off and sent to the office. There the 90 bales are listed on the inventory form as shown in Fig. 2. A page of this form is used for each lot of 100 bales or less.

Nº B/C _____ MARK _____

SHIPPED TO _____ GRADE _____

_____ DATE _____

1							51						
2							52						
3							53						
4							54						
5							55						
6							56						
7							57						
8							58						
9							59						
10							60						
11							61						
49							99						
50							100						

TOTAL WEIGHT

FIG. 3

After the cotton has been received and recorded on the inventory form, it is found that this lot of cotton is to be re-sold and moved from the warehouse. As it is removed, the second portion of the tag, Fig. 1, on each bale is torn off and sent to the office. There the shipment is consolidated on the form marked Fig. 3. It is also stamped under "date used" on the inventory form to show that it has been taken out of stock.

In cases where some of the cotton is to be opened and used in the mill instead of being sold and shipped, it is handled in much the same manner as when it is shipped: The second portion of the tag, Fig. 1, on each bale is torn off and sent to the office. There the openings are consolidated on the daily cotton opened report as shown in Fig. 4. The bales opened are then marked off the inventory form as in the case of shipment.

DAILY COTTON OPENED

STAPLE _____ DATE _____

MARK	BALE Nº	WEIGHT	MARK	BALE Nº	WEIGHT

FIG. 4

This method has been found effective in recording the incoming and outgoing cotton. If the inventory form is kept posted up to date, it will show the cotton on hand at all times. CONTRIBUTOR NO. 6566

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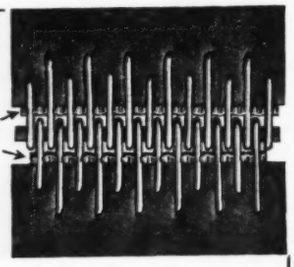

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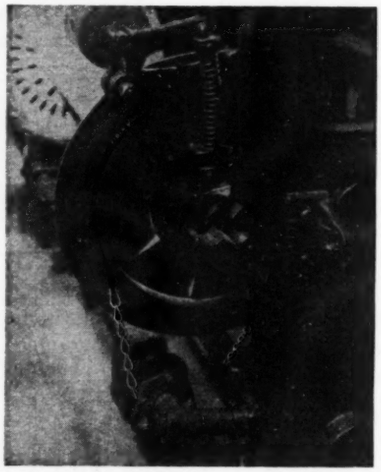

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Determining Weight Added at Slasher

A quick method of determining the amount of size plus moisture content in yarn coming from the slasher . . . . . .

EDITOR COTTON:

There is a method of determining slasher regain or amount of moisture and size left in the warp by the slasher, in practice at our plant. Although this is not original with us, I believe it is a practical method and I am passing it along to your readers.

It is often necessary to know the amount of weight being added by the slasher. As in the case of a sample, there is not time or always material available to perform de-sizing tests. To weigh a set of section beams and then weigh all warps and waste removed requires considerable time and is open to many chances of error; consequently, I have searched for some form of a reasonably accurate substitute method of determining the weight added during the process of slashing.

The method I decided upon, and have used regularly, requires no special equipment other than a regular yarn reel, such as every plant has for determining yarn numbers, and a grain scale. Any carpenter can make a roll and creel in a few minutes; these are to be used at the machine.

The procedure consists of feeding four ends into a slasher at the back and removing them at the front. The difference in the weight of the yarn is the amount of size solution added during the slashing process. (We have found that between 5 and 5½ per cent moisture, by test, is in our unsized yarn so we consider 5¼ per cent as the average and base our results on these figures.) To find the weight of the yarn at the back of the slasher I take eight bobbins of yarn of the same count as that being slashed, reel two 100-yard samples from each bobbin and weigh them accurately. I record these weights.

I then place these bobbins in the creel on the floor behind the last section beam on the slasher and lead four ends at a time over the top of the section beams to the size box. I attach the ends lightly to the yarn as it enters the size box and allow the slasher to run until the ends of test yarn are at the split rods. Here I separate the four ends from the body of the warp and lay them in the lease comb about two inches apart. After the ends have been fed around the drag roll, the same as the regular warp, they are allowed to wind on a roll which is fixed so that it rests on the center of the warp beam that is being filled. The slasher is then put in high speed and the samples of yarn allowed to run until about 150 yards have been reeled; the slasher is then slowed and the test yarn of the other four bobbins is treated in the same manner. A sheet of paper may be placed between the layers of yarn from the first set of bobbins and the second set to keep them from becoming mixed.

Then the ends of the test bobbins are broken and allowed to run out of the slasher. The small roll is removed.

With a hand reel, I wind four skeins of the sized yarn into 100-yard lengths and weigh carefully. At this point I actually wind 101½ yards because there is usually one and a half yards of stretch for every 100 yards of warp. From the weights of the unsized yarn and the sized yarn, it is easy to figure the amount of size added. In cases where we want to know *exactly* how much size is added and how much moisture, we can perform a more rigid test by the bone-dry method.

Another interesting figure can be obtained by using 120-yard lengths of yarn and making yarn breaks at the same time. That is, this method shows the strength of the yarn before and after the slashing operation. The weights may be converted into yarn numbers for better comparison of yarn sizes before and after the process.

In order to wind the yarn evenly and easily as it comes off the front of the slasher, a small roll of wood 18 inches long by 5 inches in diameter is turned on a lathe. This is covered with two layers of slasher blanket, the ends of which are tacked down with short carpet tacks. A large nail or small bolt driven in each end serves as a handle by which to hold the roll while reeling the yarn. Two short pieces of wire will hold the roll in position on the warp beam while the sample is unrolling. In this way, the operator's hands are free to manage the creel as the yarn unwinds.

The creel is made from a piece of one-inch board 6 inches wide by 12 inches long. Eight nails driven through the board in two parallel rows will allow the first four bobbins to be used first and then to be followed by the remaining four.

CONTRIBUTOR NO. 6568

"Carder" Answers "Wash's" Questions on Taper

EDITOR COTTON:

First of all I will admit that I have been mistaken about the taper on the English builder motion on fly frames. Further along I will explain more fully.

I have read carefully the comments by "WASH" on page 92 of the September, 1935, issue of COTTON in which he becomes philosophical, but I see no reason why I should change my opinion. "WASH" has a right to his own opinions but he still condemns others when they do not agree with him.

He asks for proof that I understand the English builder motion. I have been working on jobs since 1902 where the English builder must be operated correctly. Anyone who can satisfy the men who hire him for that long *must* know something about the machines in his charge.

To get on with the English builder question that "WASH" asked, "If you shorten the poker bar on the English builder, will this increase the taper on the bobbin?" I will say that I gave this question much thought and decided to experiment. I first tried by fastening a pencil to the rail and marking cards for the first and last layer of roving on the bobbin, using different settings of the poker bar for length. I could not find anything by this method that was conclusive. I then decided to make an actual test. I first started a set with the poker bar 20 inches from the center of the builder and I made a full bobbin, allowing the frame to run until it stopped by the

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191. The Bahnson Humiduct—bulletin describing Bahnson Humiduct system which combines humidifying, heating, ventilating and air conditioning all in one unit, will be sent free on request. The Bahnson Co., Winston-Salem, N. C.

192. Wood Tanks for Every Purpose—100 page illustrated catalog showing the advantages and lasting qualities of wooden tanks. Rubber-lined tanks for dyeing and other uses in the mill are illustrated and discussed in detail. Hauser-Stander Tank Co., Ammen Ave. and Spring Grove Ave., Cincinnati, Ohio.

193. Short Cuts to Power Transmission—72 page illustrated booklet containing all information needed in solving any ordinary belt transmission problem, informative material on belt joints and transmission practice and a quantity of useful tables and data. Flexible Steel Lacing Co., 4607 Lexington St., Chicago, Ill.

194. Accurately Checking Spindle Speed—A three page booklet describing the Strobotac, a tachometer operating on an entirely new principle for observing and measuring spindle speeds anywhere between 600 and 14,000 rpm. General Radio Co., 30 State St., Cambridge, Mass.

195. Never Buy Sponges in the Rain—Booklet outlining the importance of knowing the percentage of moisture in a given textile in the buying and selling of the same and in connection with the working of textile fibres in the process of manufacturing the goods, also showing different types of conditioning ovens for determining moisture content. Emerson Apparatus Co., 174 Tremont St., Melrose, Mass.

196. Economy of Diesel Engine Power—Bulletin No. 3030, 44 pages, illustrated, giving advantages of diesel power in industrial plants. Fairbanks, Morse & Co., Chicago, Ill.

197. Extra Life for Chain Link Fence—A folder telling about Bethanized Wire and explaining its advantages for mill and factory protection. Anchor Post Fence Co., Eastern Ave. and Kane St., Baltimore, Md.

198. The Perfect Loom Let-Off—Folder pointing out the advantages of the new asbestos friction loom let-off and giving specifications and price list. Fiber Mfg. Co., Newton, N. C.

200. New American Speed Set Gear Construction Numbering Machines—10 page illustrated booklet giving full information and details on special numbering machines designed for cotton, woolen, hosiery, knit goods and finishers of textile goods and others. If your tags, tickets and labels use style, piece, ease and lot numbers, yardage length, etc., these new machines will solve your numbering problem. American Numbering Machine Co., Shepherd and Atlantic Aves., Brooklyn, N. Y.

204. Modern Shipping Boxes — Illustrating the modern tendency in interior construction and exterior design, this booklet shows how shipping boxes can be made outwardly colorful and attractive. Hinde & Dauch Paper Co., Sandusky, Ohio.

205. The Walker Method—8 page illustrated catalog describing the Walker method of quickly checking the efficiency of machinery. This improved method eliminates the losses resulting from improperly adjusted equipment. Walker Electrical Company, 926 Means St., Atlanta, Ga.

206. Moccasin Wall Card—Attractive, convenient new wall card listing over 500 plain finished bronze bushings in stock for immediate shipment. Also over 200 cored and solid bars made to S. A. E. 64 specification. Every mill should have one of these for handy reference. Moccasin Bushing Co., Chestnut St., Chattanooga, Tenn.

207. Reworking Spinning and Twister Rings—folder describing Gossett's patented method of reworking spinning and twister rings, making old, worn and discarded rings like new. Gossett Machine Works, Inc., Gastonia, N. C.

208. Cool Your Mill With its Own Heat!—a ten page booklet which tells the story of the Parks Automatic Airchanger—a patented combination of forced air-change and direct humidification in balance—all under control of automatic humidity regulators. Ask for Bulletin 1135. Parks-Cramer Co., Fitchburg, Mass., and Charlotte, N. C.

209. Are You Being Kidded About Automatic Humidity Regulation—a direct comparison of the sensitivity, accuracy and reliability of a hygroscopic type of humidity regulator and the Park Spray Psychrostat—the first and only regulator to work on the psychrometric principle. Ask for Bulletin 835. Parks-Cramer Co., Fitchburg, Mass., and Charlotte, North Carolina.

210. Stretch Out Goodwill!—Let spinners spin and Parks Automatic Traveling Cleaners do the cleaning, mechanically, regularly. Eliminates slugs, gouts, bunches; greatly reduces breakage, loom stoppage, seconds; improves production in quality and quantity. Ask for Bulletin 236. Parks-Cramer Co., Fitchburg, Mass., and Charlotte, N. C.

213. Saco-Lowell Cotton Machinery—Twisting—a 36 page illustrated brochure explaining the company's twisters and parts, including the four basic type twisters, features of new construction and general notes on twisting. Production calculations and specifications are included. Saco-Lowell Shops, 147 Milk St., Boston, Mass.

214. Saco-Lowell Cotton Machinery—Spinning—the second edition of a 56 page booklet, illustrated with the company's product and containing valuable charts, production tables and other spinning data. Saco-Lowell Shops, 147 Milk St., Boston, Mass.

215. What Happens When You Ship a Package?—16 page illustrated booklet outlining the particular value of railway express and air express service and giving all details concerning pick-up, transportation and delivery. Railway Express Agency, Inc., 230 Park Ave., New York, N. Y.

216. Cutting Costs with Liquid Caustic Soda—a 72 page hand book, packed full of useful information on liquid caustic soda, including unloading and handling, properties of caustic soda and its equeous solutions, sampling and analysis. Of practical value to executives, buyers, chemists and operating men. Sent without obligation by writing on your business letterhead to the Mathieson Alkali Works, 60 East 42nd St., New York, N. Y.

217. Diamond Fibre Hollow Ware—32 page booklet and catalog, attractively illustrated, showing various types of boxes, trucks, cans, barrels, baskets and trays of Diamond Fibre Hollow Ware. Of interest to every mill man in solving material handling problems. Free on request. Continental Diamond Fibre Co., Dept. C, Wilmington, Delaware.

218. Butterworth Electric Guiders—6-page folder describing and illustrating the new Butterworth Electric Cloth Guider. This guider is built on the same principle as the Foxwell Air Guider and is unexcelled for fast, accurate guiding. H. W. Butterworth & Sons Co., Philadelphia, Pa.

219. My Strap-Book by Doc Steelstrap—16 page illustrated catalog describing the hundreds of ways that Acme steel strap can be used to advantage in connection with paper boxes and wraps in making safe, economical shipping packages. The strap-book will convince you that Doc Steelstrap and his assistants do a thorough job of the packing and shipping business. Acme Steel Co., Chicago, Ill.

220. The American Monotractor—24-page booklet illustrating electric drives for cranes, hoists and carriers on MonoRail conveying systems. This book outlines some of the control features that make possible complete and semi-automatic transportation of heavy loads from process to process, building to building. The American MonoRail Co., Cleveland, Ohio.

221. A New Overhead Automatic Cleaner — Folder showing the new American MonoRail automatic cleaner in operation on MonoRail track circuit over spinning, warping, winding, twisting, etc. This cleaner incorporates a new scientifically designed blower producing a whirling column of air directed and controlled so that it prevents accumulation of fly with no harm to roving. The American MonoRail Co., Cleveland, Ohio.

222. "Onyx Processing and Finishing Compounds"—A new 56 page catalog describing the entire line of processing and finishing compounds and covering every process on all types of fabrics. Also included is a comprehensive article on the subject, "The Importance of Accurate pH Control." Onyx Oil and Chemical Company, 15 Exchange Place, Jersey City, New Jersey.

223. Alloyed Iron in Southern Industrial Fields—16 page illustrated catalog dealing with the properties available in modern cast irons. International Nickel Co., 67 Wall St., New York, N. Y.

224. "Tank Talk"—Sixteen page booklet of illustrations showing various types of elevated steel tanks, constructed and erected by manufacturers, as well as stand pipes, reservoirs, storage and high pressure vessels, cylinders, along with helpful technical data. Also a list of what a few of the cotton mills, etc., said. R. D. Cole Manufacturing Company, Newnan, Georgia.

225. Houghto-Size AC — showing characteristics a warp sizing compound must have for modern rayon fabrics, weakness of former sizes and the unusual advantages of Houghto-Size AC. E. F. Houghton & Co., 240 West Somerset St., Philadelphia, Pa.

225. Stainless and Heat Resisting Castings—folder illustrating and describing stainless steel castings for corrosion and heat resistance, and listing the various alloy castings available and their properties. The Cooper Alloy Foundry Co., 150 Broadway, Elizabeth, N. J.

227. Stainless Steel Valves and Pipe Fittings—complete illustrated catalog, together with price list, covering stainless steel valves and pipe fittings, giving all dimensional data, etc. The Cooper Alloy Foundry Co., 150 Broadway, Elizabeth, N. J.

228. Solutions for Your Problems—20-page illustrated booklet containing valuable information on the scouring and processing of wool and other fibres. Detergent Products Corp., Atlanta, Ga.

229. Over 40 Million Tons—Attractively printed folder listing the producing companies which mine the high volatile coals which are specifically suited to particular industrial requirements. Appalachian Coals, Inc., Cincinnati, Ohio.

11. Whitinsville Rings—16 page illustrated booklet, describing ring manufacture, measurements, types, uses. How to determine flange sizes. By Whitinsville Spinning Ring Co., Whitinsville, Mass.

23. Practice of Rayon Sizing in American Mills, Raygomm, Lakoo Gum—Three booklets on products for sizing and finishing rayon and other textiles, presented by Stein, Hall & Co., Inc., 285 Madison Ave., New York, N. Y.

25. "Lupogum" and "Monopole Oil"—Two booklets on textile sizing and finishing products. Jacques Wolf & Company, Passaic, N. J.

29. Continuous Card Stripper—A 20 page booklet describing in detail continuous card strippers, their advantages, the power required to operate, etc. Saco-Lowell Shops, 147 Milk St., Boston, Mass.

30. Lubrication of Textile Machinery—32 pages, illustrated. Data covering the economical lubrication of all textile machines. New York & New Jersey Lubricant Co., 292 Madison Ave., New York, N. Y.

38. Sleaziness in Full Fashioned Knitting—Illustrated survey with samples of fabric showing causes of sleaziness and methods to be employed in eliminating it.—By Textile Machine Works, Reading, Pa. (This company also issues parts catalog for Reading full fashioned machines with general information on subject of full fashioned knitting.)

55. Interpretation of Analysis for the Layman—An eight page booklet explaining what the various items used in fatty oil and sulfonated oil analysis mean, enabling the ordinary textile man without chemical education to interpret the various chemical analyses. National Oil Products Co., Harrison, N. J.

62. Rubber Products for the Textile Industry—A 40 page booklet giving a wealth of information on the proper selection, installation and operation of rubber belts, together with charts, showing horsepower rating, pulley sizes, V-belt sizes, also information on all types of hose and rubber covered rolls used in the textile industry. Manhattan Rubber Mfg. Division of Raybestos-Manhattan, Inc., Passaic, N. J.

64. Efficiency and Performance of SKF Roller Bearing Spindles—A twelve page booklet showing the advantages in power consumption, increased production, savings in lubrication, increased yarn breakage strength to be secured through roller bearing spindles. SKF Industries, Inc., Front St. and Erie Ave., Philadelphia, Pa.

65. Bulletin No. 500, Cooper-Hewitt Industrial Illumination—booklet explaining in detail the importance of good lighting and the necessity of proper quality as well as proper quantity of light. General Electric Vapor Lamp Co., Hoboken, N. J.

66. Dronsfield's Patent Portable Auto-Feed Needle Point Grinder No. 176—describing a new departure in card grinding—John Hetherington & Sons, Inc., 250 Devonshire St., Boston, Mass.

69. Monel Metal Equipment for the Textile Industry—A 50 page buyers' guide and catalog with more than 100 illustrations of various items of monel metal dyehouse equipment. International Nickel Company, Inc., 67 Wall St., New York, N. Y.

70. Fafnir Ball Bearings for One Process Pickers—outlining the advantages of ball bearings in guaranteeing smooth, accurate motion, particularly on evener, as well as uninterrupted production, ease of operation and cleanliness of bearing units throughout the one-process pickers. Fafnir Bearing Company, New Britain, Conn.

72. The Merrow Butted Seam—A 16-page booklet defining and illustrating the Butted seam, describing its properties and outlining some of the advantages to be gained by its use in textile fabrics. The Merrow Machine Co., Hartford, Conn.

77. Bulletin S 200—Illustrating and describing the new Reeves Variable Speed Drive for spinning and twister frames, explaining its many distinct advantages and giving charted results of exacting tests. Reeves Pulley Company, Columbus, Indiana.

88. Dayton Cog Belt Catalog—A 32 page booklet full of vital information on power drives, plainly and simply assembled and arranged so that anyone can select the proper standard drive for any condition. It also provides data for the calculation of drives where acquired. The Dayton Rubber Mfg. Co., Dept. C-11, Dayton, Ohio.

94. New Development by Onyx—Eight page booklet describing and giving uses of new developments in sulphonated aliphatic compounds . . . called Aliphatic Ester Sulphate and Glyceryl Sulphates. Onyx Oil & Chemical Co., 15 Exchange Place, Jersey City, N. J.

106. Cotton System Warp Sizing on Multiple Cylinder Machines—a folder showing the advantages of this type of machine in making warps of acetate and other synthetic yarns and spun silk.—Charles B. Johnson, Paterson, N. J.

107. Complete Information on Alemite Lubrication. Showing how costs can be reduced through proper lubrication. Alemite Corp., 1828 Diversey Blvd., Chicago, Ill.

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knock-off motion; this was on a 6x2½ frame. Then I shortened the poker bar to 19 inches and adjusted the screws on the latches to give the same length for the first layer as on the first bobbin, and proceeded as before. In comparing these two bobbins I noticed no change in the taper, and if I had stopped there I should have held to my former opinion. But I decided to test further and I shortened the poker bar to 17 inches and proceeded as before. The taper on this bobbin was different from the first and made a nice appearing bobbin—the last layer was 3/16-inch shorter than the last layer on the bobbin made with the longer poker bar setting. I stand corrected again and admit that I was mistaken.

In all my work around this builder, I have found that if the motion is kept clean there will be no running over or under, provided the speeder tender does not keep taking up on the rack.

"WASH" also asked the question, "Why are the layers per inch closer together on the outside of a full bobbin than they are on an empty bobbin on a Woonsocket fly frame?" I studied this question but could find no reason. To be on the safe side I borrowed a bobbin of a Woonsocket frame from another carder. It was 4.5 hank roving made on an 8x4 frame. I counted the layers per inch on every layer of this bobbin with a pick glass and pointer. The figure marked "A" is the outside layer and the figure marker "B" is the layer on the bare bobbin.

A.	31	32	32	32	31	31	31	31
	33	31	31	30	32	32	31	32
	31	32	32	31	31	32	31	31
	32	31	31	32	32	31	32	29
	31	32	32	31	32	31	30	30
	32	31	32	32	31	32	32	31
	31	31	32	31	32	31	31	31
	32	30	31	32	30	32	32	31
	31	31	31	30	32	32	31	32 B.

From these figures I would say that the layers were not the same because it is impossible to have every part of the strand the same diameter. This is not a theory answer but is actual count from a bobbin made under another overseer from another mill.

CARDER (MASS.)

Extemporaneous Discussion of Subjectes Held at Greensboro Meeting

(Continued from page 74)

had 24 spindles running with these rolls for about 60 days, and so far they are running very good, with no trouble, and a slight increase in breaking strength.

Controlled Draft Drawing

W. L. Davis asked for experiences with the new type of controlled draft drawing, in which 16 ends of sliver, made from the card sliver on a machine similar to a ribbon lapper, are run into the drawing. G. E. Moore reported that he has this equipment and likes it very much. "We think we get better numbers and it is more even—however, we did not have much drawing to start with," Mr. Moore said. He added that there is no saving in the cost with this process.

"Our experience with the controlled draft drawing has been that we get a more even sliver," said Mr. Rushworth. "So far as cost is concerned there is very little difference, but we are sold on the new drawing on account of the evenness."

Mr. Farmer reverted to the subject of cleaning long draft spinning equipment. D. C. Anderson and George P. Stone told him of a device called the electric roll picker consisting of a small portable motor operating a long spindle which picks up the accumulated lint when stuck down into the long draft mechanism. "We are very much pleased with this device," said Mr. Stone. "When the girls tried to do this work by hand their fingers would get worn trying to pick around the saddles or cradles, and with this little device it is a lot easier on them. We find that with it one boy can clean about 60 frames a day. Our spinners are tickled to death with it."

C. F. Noah, overseer of weaving, Proximity Mfg. Co., Greensboro, brought up the question of what to do about changing the bristles in shuttles when running a variety of filling over a range of 5 numbers or so. No one present was able to give him much advice, other than to do "the best you can", which he indicated he is already doing. He said he finds some shuttles that come equipped with bristles must have the bristles changed. Mr. Craven pointed out that the matter of the bristle to use depends on the kind of filling being run; "if you are running 18s with a hard twist, and change to a coarser filling with a soft twist, you will have to do something about the bristles and change them."

Preventing Gouts in Warp Yarn

The final question was brought up by D. F. Short, overseer of weaving, Edna Cotton Mills, Reidsville, N. C., who told of a recent visit to a mill that was having an excessive amount of loom stoppage. Investigation proved that the major difficulty was gouts in the warp yarn which the superintendent said came from the bottom of the cones used in his high speed warping. These cones, Mr. Short said, ran for 18 hours in the warper creel. Mr. Short asked whether it would be practical to build partitions around the warpers to help prevent this accumulation of lint on the bottom of the cones. John D. Scott said that he runs the Foster high speed creel for cones, though his 8s do not run but about 2½ hours, and he has no undue trouble from gouts from such a source. He explained he uses the automatic overhead cleaner in his warper room, and that this cleaner, which breaks up the fly, is followed by a "trailer" with a narrow mouth, that comes along and blows the fly out. Mr. Rushworth said the only partitioning he did was to have sheeting hooked onto a wire which is pulled around the machines at blowing off time. Mr. Craven, with cone warping, suggested a baffle about 12 inches in height on the floor to break the cross drafts. Mr. Anderson told of seeing a vacuum cleaning system for Barber-Colman warpers which has a suction mouth directly over the drop wires on the warper for collecting lint and depositing it in a dust chamber.

HELPFUL BOOKLETS FREE...

Continued from Page 122

109. Some Properties of Starch and Dextrine—Explaining certain fundamental properties of starch and its derivatives and their action when heated and agitated. Stein, Hall & Co., Inc., 285 Madison Ave., New York City, N. Y.

110. 3-In-One Oil for Industrial Uses—showing the many industrial uses and advantages of this oil. A. S. Boyle Co., 1934 Dana St., Cincinnati, Ohio.

116. Arcy—Telling in an interesting way the story of Arcy, which completely liquefies ordinary thick boiling pearl starch, and its many advantages. Drake Corporation, Norfolk, Va.

117. Anti-Friction Bearings as Applied to Spinning, Drawing and Twisting Frames—This bulletin shows with detailed drawings how a simplified design of roller bearing applications is made to replace the plain babbitt bearings and lists the advantages that are gained. It deals primarily with better continuous production and in consequence freedom from equipment care and repairs. Hyatt Roller Bearing Co., P. O. Box 476, Newark, N. J.

119. The World's Finest Sewing Machines—a condensed catalog giving details of the various Willcox & Gibbs sewing machines. Willcox & Gibbs Sewing Machine Co., 658 Broadway, New York, N. Y.

120. Goodyear Mechanical Rubber Goods Catalog—40 page catalog giving practical information and tables helpful in the selection of the proper belting, hose or packing to suit the requirements of the mill. Goodyear Tire & Rubber Co., Akron, Ohio.

121. Engineered Packages for the Textile, Dry-Goods and Apparel Industries—Showing the savings to be made through the use of properly engineered packages of corrugated fibre in the shipping of yarn, woven and knitted products. Hinde & Dauch Paper Co., Sandusky, Ohio.

122. Water Filters and Filtration Equipment—Containing complete description of the chemical processes involved in the coagulation and precipitation of foreign matter, the removal of iron, oil, manganese, from water and the production of clean water suitable for the textile industry, together with tables of specifications for standard filters, and information showing the extra profits to be made by the mill through reduction in costs and process difficulties, through removal of undesirable impurities in water. Permutit Company, 330 W. 42nd Street, New York, N. Y.

124. New Condensed Catalog on Ball Bearings and Power Transmission Units—Combines all of the information and the industrial uses of radial ball bearings as well as the Fafnir power transmission line of wide inner ring and ball bearings. It gives complete information, interchangeability tables, dimensions, prices, etc. Fafnir Bearing Company, New Britain, Conn.

127. Vim Short-Center Drive with Vim Tred Leather Belting.—16 page booklet outlining the special requirements of belts for short-center drives and the proper adjustment to give the highest efficiency. E. F. Houghton & Co., 240 W. Somerset St., Philadelphia, Pa.

128. Houghton's Hand Book for the Hosiery Dyer—This book contains the result of 69 years of experience in research and development of processing materials for the textile industries, together with a wealth of other data useful to every hosiery dyer. E. F. Houghton & Co., 240 West Somerset St., Philadelphia, Pa.

130. Three New Textile Scouring Agents—This 32-page book gives many valuable formulas for the use of Houghton's Wonder Powder—a new type of colloidal detergent—in fulling, scouring and finishing nearly all types of woven and knit goods. Also contains several pages of valuable reference and conversion tables. E. F. Houghton & Co., 240 W. Somerset St., Philadelphia, Pa.

131. Houghton's Leathers for the Textile Industry—This valuable handbook contains 88 pages of data on the proper selection and application of all types of textile leathers, including belting, special spindle belts, round leather belts, loom leathers, mill strapping, leather aprons, etc.—E. F. Houghton & Co., 240 W. Somerset St., Philadelphia, Pa.

134. STA-PUT Lubricants—A brief description of an entirely new type of tough film lubricants which not only gives greater protection to bearings but eliminates oil drip and reduces lubrication costs. STA-PUT Lubricants are made in grades to suit all types of textile machinery. E. F. Houghton & Co., 240 W. Somerset St., Philadelphia, Pa.

135. The Pick Method of Weaver Wage Payment—A manual of practical information describing methods to be followed in using Pick Counters; suggested forms, and tables included. Durant Manufacturing Co., 1932 No. Buffum St., Milwaukee, Wis.

139. Textile Detergents—Theory of the use of alkalis and control of pH.—This 32 page booklet explains in simplified manner for the benefit of the layman the chemical processes that take place in using textile detergents in the finishing of textile goods. It contains many useful tables and data. Detergent Products Corp., Peachtree Bldg., Atlanta, Ga.

140. Textile Machinery—Improvements in Design and Methods of Lubrication. A discussion of the problem of lubrication of textile equipment covering operating conditions and factors affecting and affected by lubrication. Card Room Operations, Twisting and Spinning Machines, Silk Throwing, Looms, Knitting Machines, etc., covered. Available in copy of June 1934 issue of "Lubrication." The Texas Company, 135 E. 42nd St., New York City.

141—V-Belt Engineering Data Book—Over 50 pages of pertinent engineering information including data on selecting a V-Belt drive design of special V-Belt drives, numerous standard tables, charts and belt and sheave list prices. Manhattan Rubber Manufacturing Div. of Raybestos-Manhattan, Inc., Passaic, N. J.

143. Winders and Winding—Describing the various processes in the preparation of cotton, woolen and silk yarn and illustrating and describing the different types of Universal winders and the various attachments to suit the particular winding requirements of the various branches of the textile industry. Universal Winding Co., 95 South St., Boston, Mass.

147. Let's "CAN" The Oil Can—describing permanently sealed bearings for life, and for higher speeds and temperatures single seal ball bearings which have to be lubricated only from one to three years. New Departure Mfg. Co., Bristol, Conn.

150. Engineering Data Book on Mechanical Rubber Goods—21 pages of useful information and engineering data, designed to simplify the selection of belting, hose and other mechanical rubber goods for industrial service, including a review of belting requisites for a wide variety of uses as well as helpful tips on installation procedure. B. F. Goodrich Co., Mechanical Division, Akron, Ohio.

152—Plant Checkup List—Crane Co., 836 South Michigan Ave., Chicago, Ill.

154—Johnson Bronze Bulletin No. 340—showing over 600 sizes Johnson general purpose bronze bushings. Johnson Bronze Co., New Castle, Pa.

155. Link-Belt Catalog 1274 on the P.I.V. Gear—giving details of this positive variable speed control. Link-Belt Co., 910 South Michigan Ave., Chicago, Illinois.

156. Link-Belt Engineering Data Book No. 125—showing features and giving engineering data on Link-Belt silent chain drives. Link-Belt Co., 910 South Michigan Ave., Chicago, Ill.

157. Grading Rules and Complete Specifications for Laying and Finishing Maple Floors—Maple Flooring Manufacturers Association, 1794 McCormick Bldg., Chicago, Ill.

163. Roto-Koner—Bulletin describing the new No. 44 Universal Winder, known as the Roto-Koner for winding knitting yarns, which has many new and distinctive features. Universal Winding Company, 95 South St., Boston, Mass.

164. Johnson Rotary Pressure Joints—Bulletin describing this rotary pressure joint which requires no packing, no lubrication and no adjustment, giving installation and maintenance instructions, types, sizes, dimensions and prices. The Johnson Corp., Three Rivers, Mich.

165. New Departure Speed Power Unit—Bulletin giving details of this compact, self-contained driver that gives a thousand different speeds at a turn of the wrist. New Departure Manufacturing Company, Bristol, Conn.

168. Better Cones The World Over—Bulletin describing the Universal No. 50 Winder for silk and rayon. Universal Winding Company, 95 South Street, Boston, Massachusetts.

168—The Tube-Tex for Tubular Knit Goods—Bulletin describing this modern machine which extracts, processes, dries, conditions and folds in one continuous operation, lowering costs, saving labor, power, space and waste. H. W. Butterworth & Sons Co., York and Cedar Sts., Philadelphia, Pa.

169. Tube-Tex High Speed Steamer and Finisher—Describing these new steaming and finishing machines for tubular knitted fabrics, which handle cotton, rayons, woolens and mixtures at speeds up to 45 yds. per minute, being unique in that patterns, designs and stripes are furnished straight and free from any distortions. H. W. Butterworth & Sons Co., York and Cedar Sts., Philadelphia, Pa.

170. Gates Textile Accessories—Showing the increased efficiency and economy to be secured through the use of Gates cone belts, evener belts, card bands and loom binder cushions. The Gates Rubber Company, Denver, Colo.

171. Design of V-Belt Drives—48 page booklet full of valuable tables and data showing the type, number and design of V-Belts that will give the greatest efficiency on each particular drive. The Gates Rubber Company, Denver, Colorado.

176. Sonoco Products—A 60 page illustrated booklet giving descriptions, specifications and charts of the many Sonoco products, including: bobbins, cones, tubes, cork cots, roving cans, spools, rolls, etc. Sonoco Products Co., Hartsville, S. C.

177. New Advances in Loom Equipment—12-page booklet describing discoveries and advances which loom manufacturers have made in keeping pace with these discoveries down to the present time—non-technical informative, amply illustrated. Emmons Loom Harness Co., Lawrence, Mass.

179. Improved Airplane Propeller Exhaust Fans and Ventilating Equipment—a 40-page catalog showing the important factors to be considered in a propeller type fan to secure the greatest efficiency, with data and tables showing fan capacity and details of each type and size of fan and views of typical installations. Propellair, Inc., Springfield, Ohio.

180. These Extra Cushion Cork Cots Offer Six New Advantages—a 6-page folder which tells the story of the new Armstrong's Extra Cushion Seamless Cork Cot from the viewpoint of the mill man. The folder describes HOW the new cot is of advantage to mills spinning cotton yarn; WHY it is better, and something about its method of manufacture, and also gives PROOF in the form of some tests that have been made with this new roll covering material. Armstrong Cork Products Co., Textile Division, 939 Arch St., Lancaster, Pa.

183. Schieren-izing—describing leather belt manufacture from the selection of hides through the various processes to the final tests, also showing illustrations of belts with unusually long service lives. Chas. A. Schieren Co., 31 Ferry St., New York, N. Y.

184. Speed Control Handbook T-35—new reference book on variable speed control, said to be the most complete and helpful book on this subject ever published, 112 pages and more than 200 illustrations of interest to every production executive, purchasing agent, superintendent, overseer and master mechanic. Reeves Pulley Co., Columbus, Ind

185. Dulux—The White Finish that Stays White—New book describing the new ten-point finish for factory walls and ceilings, the finish that stays whiter, stays cleaner and stands repeated washings. E. I. duPont de Nemours & Co., Finishes Division, Wilmington, Del.

186. F-7 Feeder Bulletin — Describing the better blending that is secured and the important cleaning operation that is added by using F-7 feeders in place of bale breakers. Saco-Lowell Shops, 147 Milk St., Boston, Mass.

187. The Wildman Single Head Full-Fashioned Hosiery Machine—Literature on request from the Wildman Mfg. Co., Full Fashioned Division, Norristown, Pa.

188. Form 374—This form enables you to gather your own cost data on your sewing machines and determine whether new Union Special Machines will show big savings. Furnished free by Union Special Machine Co., 400 No. Franklin St., Chicago, Ill.

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"This is the Scott & Williams Machine Age"

KNITTING SECTION

A Modern Full-Fashioned Plant—Hudson Silk Hosiery Company

By a Member of the Staff

MODERN machinery, windowless buildings, air conditioning, and up-to-date and adequate lighting are among the features of the prominent full-fashioned hosiery mill described here . . .

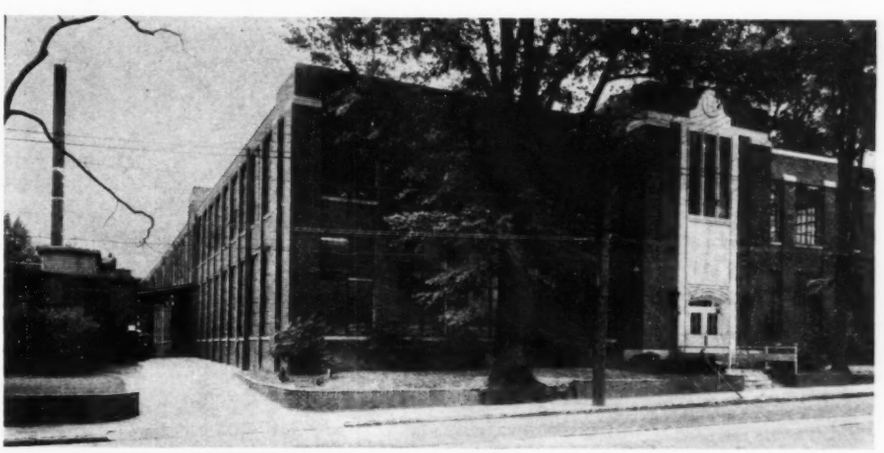
IN 1926 a little mill that formerly had been used only as a demonstration plant began to produce full-fashioned hosiery for the market. This mill started in Charlotte, N. C., using a small rented building and beginning operations with a nucleus of 7 full-fashioned knitting machines; that nucleus was the fertile ground from which sprang the present-day Hudson Silk Hosiery Company.

The plants are two in number, one located in the city limits of Charlotte and the other, most modern knitting mill, is situated a few miles out of Charlotte on the Monroe, N. C., highway. The latter named unit is known as the Oakhurst plant of the Hudson Silk Hosiery Company.

The combined plants house a total of 125 full-fashioned knitting machines, 111 of which are 45-gauge and the remainder 42-gauge. All of these knitting machines are of the three-carrier ringless type, high speed, with 24 sections each, and all of this modern equipment has been installed since 1929, which makes the lay-out for production practically a new mill. There are now over 1,200 employees in the two plants; the majority of the employees are in the up-town plant.

The Oakhurst plant houses 32 of the knitting machines and the up-town plant contains 93. All looping, seaming, dyeing, finishing, inspecting, mending, and shipping is done at the up-town plant, where there are 84 loopers and as many seamers, 11 Proctor & Schwartz automatic boarding machines, which require little space, and the regular finishing equipment. The capacity of the dyehouse is 20,000 dozen a week. In the inspection department is an inspecting form worked by air pressure upon which the operative may slide the hose to better examine it for defects. This form, which was developed at the mill, carries 25 pounds pressure and exposes the toes, heels, and narrowings that would otherwise go unseen. Also of interest is a new machine for latching-up runs in the stocking, which is operated by air pressure.

In the up-town plant the mending, inspecting, looping, and seaming departments are air-conditioned. This room previously was used for the throwing of silk, but when the throwing machinery was transferred to the Oakhurst plant the air-conditioning unit was left intact for the further comfort of the employees. The knitting room in the up-town plant, containing 93 three-carrier attachment, high speed, 24-section knitting machines, is also air-conditioned.



The uptown plant where all dyeing and finishing is done.

The air conditioning equipment was furnished by Carrier Engineering Corporation, Newark, N. J. The central system of air-conditioning unit is employed in a knitting mill because of the delicate machinery which requires uniform temperature and humidity at all times. Then too, the settings on a full-fashioned machine are gauged from one end and a difference in temperature would mean a corresponding difference in settings.

Now we come to the most modern of all the modernization in the new Oakhurst plant. That portion of the building housing the knitting machinery and the silk throwing machinery contains *no windows*. To our knowledge this is the first knitting mill built in this manner. The entire unit is air-conditioned, the

The FAST LOCK

FOR KNEE LENGTHS

The Fastlock Machine may be truly credited as the creator of a new vogue. It turned a fad into a staple. The efficiency and operating economy of the Fastlock in actual mill operation have justified its adoption by leading hosiery manufacturers throughout the country. The industry now has the means for taking full advantage of the sales possibilities of a well made knee length stocking. May we demonstrate the Fastlock on your knee lengths?

Knee lengths courtesy of Reading Maid Hosiery Mills, Inc., Reading, Pa.

The Fastlock attaches garter tops with three separate rows of stitching, giving triple strength and greater security.

Operates at high speed and does not injure fabric or elastic top.

No welt is required, eliminating an extra cost.

Handles both plain and open elastic.

Does not affect two way stretch of elastic top.

Produces more dozens per hour, lowering costs.

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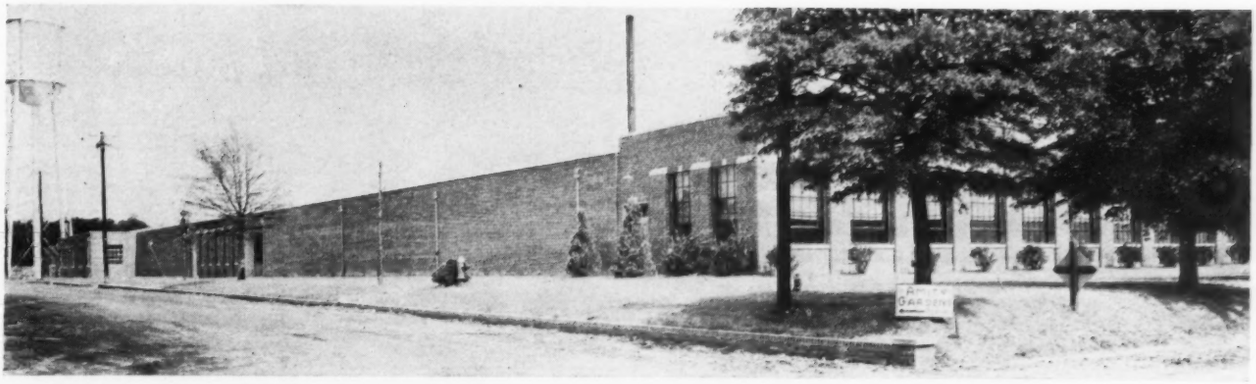
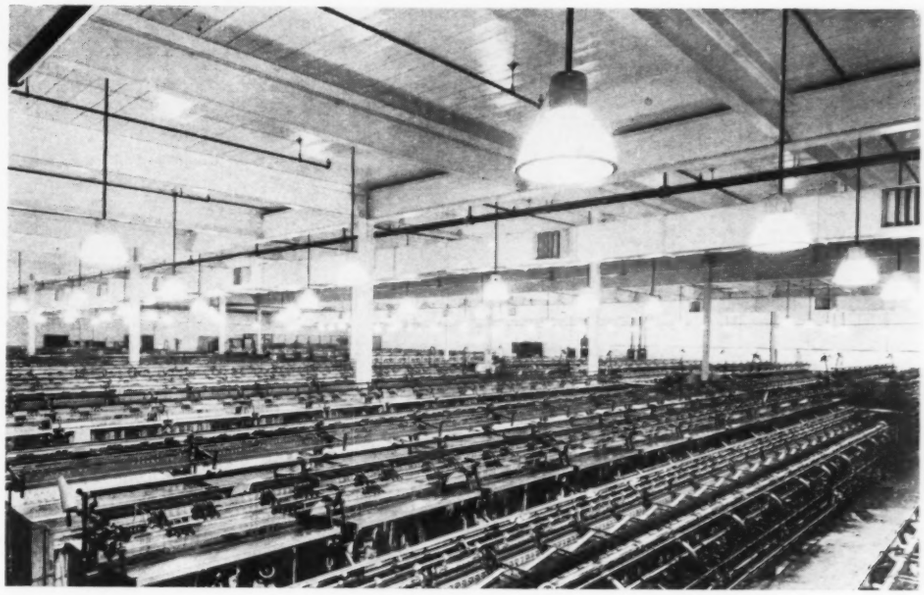


The Oakhurst plant which is located on the Charlotte-Monroe highway. The knitting room and silk throwing room have no windows. The plant is air-conditioned throughout . . . . . .

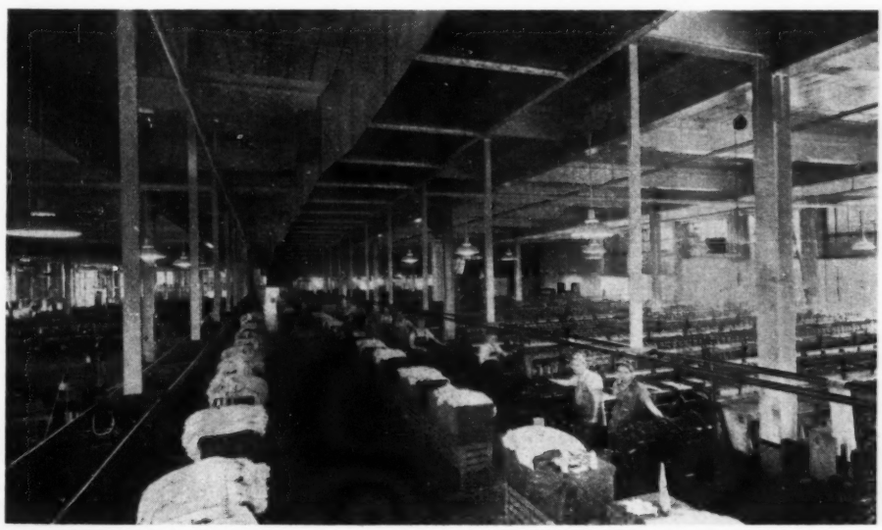
knitting room equipment being of the Carrier type and that in the silk throwing department being furnished by B. F. Sturtevant Company, Boston, Mass.

The lighting in the knitting room containing no windows is of the Holophane principle, installed by the Duke Power Company. This is direct lighting but employs the prismatic glass, which diffuses the light and secures the advantage of both indirect and direct lighting. The knitting room has an average of from 20 to 30 foot candles of light, which is declared by lighting engineers to be adequate for this manufacturing operation.



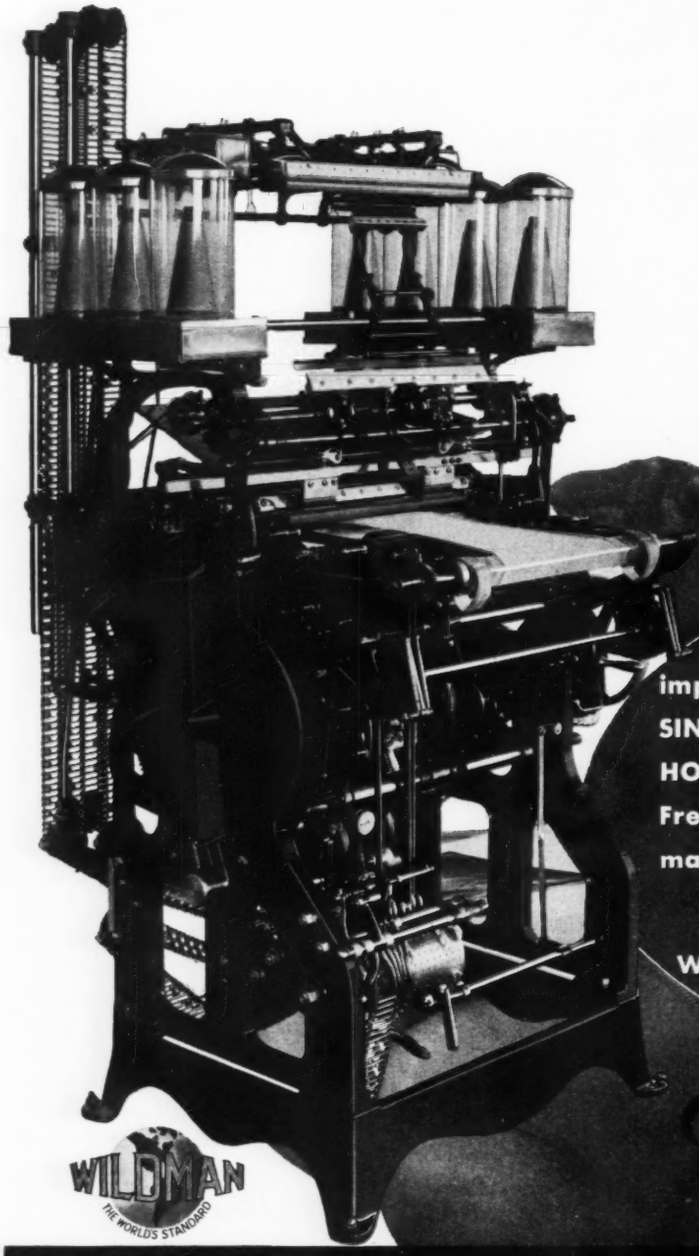
The knitting room of the Oakhurst plant; Holophane lighting is employed

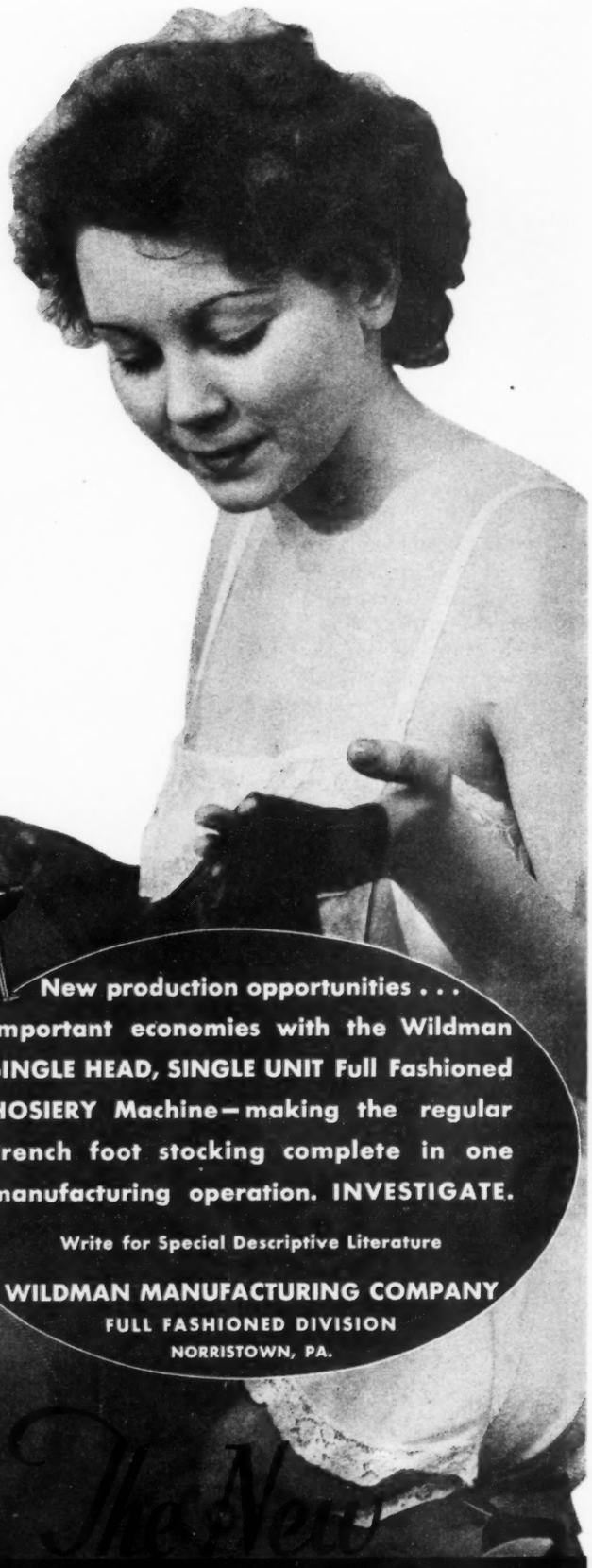
Why windowless? Because a window consumes as much as 18 times the amount of heat required to warm the same space that is filled solid, less heat is required to make the room comfortable in winter. This also facilitates the proper control of air-conditioning and relative humidity. Then the windowless rooms guarantee a more uniform lighting effect. Quite often the portion of a machine nearest a window has 1,000 foot candles of light on it while only a few steps away the light has diminished to as low as 3 or 5 foot candles. This inconsistency of lighting is detrimental to the eyes and efficiency of the operatives. Also, without windows there is no danger of an operative looking up from his work and being blinded by beams of sunlight pouring into the room. The same basic prin-



The knitting room of the uptown plant, showing the air-conditioning equipment. There are 93 machines in this department.

Perfect Match Leg and Foot





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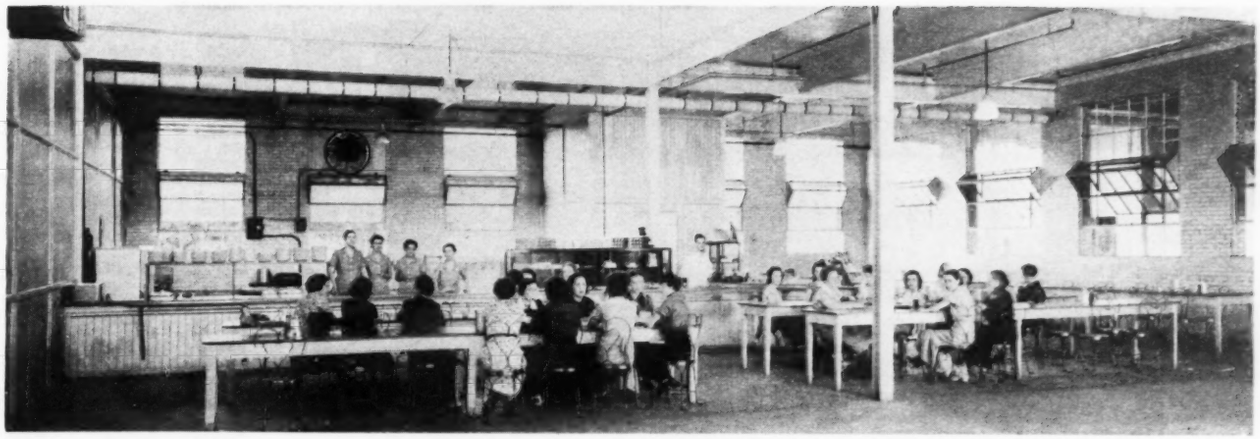

The cafeteria in the Oakhurst plant. 75 persons may be served here at one time. This picture was taken just before the second shift began work in the silk throwing department . . . . . .

ciple holds for the silk throwing department where the building is also windowless.

But the success of this hosiery mill is not due alone to several immediate modernization features. There is a philosophy on the part of the management that is much deeper than the epidermis of brick and mortar, up-to-date equipment, generated and properly distributed electric current, and controlled air-conditioning. The first of these is the necessary understanding between capital and labor, management and employees. The operatives are trained and told is expected of them—they give it; the management meets the employees half way.

> "WE BELIEVE in modernization; we believe in continuous modernization; and we believe in modernization while we are financially able and not when we are forced to do it."

An excellent example of this is the cafeteria which is maintained for the use of the operatives, and which is not run for profit. There are numerous activities for all employees of the plants such as baseball, basket ball, bowling, and softball for both girls and boys. Incidentally, the bowling team is composed of members of both the executive force and the operatives.

The last philosophy that depicts the success of these mills may be summed up in the words of an executive of the company: "We believe in modernization; we believe in continuous modernization; and we believe in modernization while we are financially able and not when we are forced to do it."

Count the Probable Cost

So much has been said about the terrific cost of accidents that the average person who has been so fortunate as to escape injury is inclined to feel that accident-prevention is just one of those subjects certain folks like to rave about. In other words, to speak in every-day American tongue, it is just so much boloney.

Due greatly to the prevalence of this impression, most campaigns for accident-prevention have been ineffective. Some one has said, and many have repeated, "A burnt child dreads the fire"; and so it is, for he that has borne the cost of an accident becomes cautious lest he again suffer a similar experience.

Isn't it rather absurd that people, with the ability to think, have to experience suffering, anguish and losses to even make an effort to avoid conditions which make such inevitable? Why, the beasts of the forest recognize danger before encountering it.

Daily people take chances, which common sense and the law of averages should tell them will eventually lead to accidents. The fact that they haven't yet been hurt overweighs the argument that they are apt to be hurt.

A person may succeed in picking a piece of lint from the teeth of gears in motion a dozen times, but the thirteenth might be so unlucky that those nimble fingers might be nimble no longer. The open knife in the overall pocket might rest innocently there for many weeks, but there is ever the possibility of it becoming a bitter enemy to the owner's hand or another member of the body.

Small abrasions, with the help of nature, generally heal, but every once in a while they become infected—and there's more than doctors' bills to pay. Ask some one who knows from experience, and stronger language will be used.

Spitting on the floor isn't so good at any time, but, when somebody happens to come along and—by slipping on it—changes his posture from the vertical to the horizontal it's worse than terrible. That someone might be anybody.

Before purchasing a car, a person is vitally interested in its price—he is concerned with the operating cost. In fact, he wants to know all there is to know about it.

Before taking a chance; before violating safety rules, before endangering yourself and your fellowman—count the probable cost.—The Textorian.

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Enough said!

Holding Down Waste in a Full-Fashioned Hosiery Mill

EDITOR COTTON:

The matter of waste is one of the most destructive hindrances to any progressive mill man. I think every man manufacturing full-fashioned hosiery will agree with my opinion that the topping and footing operations are probably the most wasteful elements in the mill if not checked properly, and here I would like to describe for you a system for controlling this waste which we have found very advantageous.

The topper receives her work from the stock room window (I do not allow anyone in the stock room except the stock room man). The stock room man takes the serial number down off of the ticket on the bag (all of our work is tied up in single dozens and then put into a bag of three dozen), and puts this number by the topper's work number, that is the number given the girl at the time of employment. We allow each topper to take out three bags of work at one time (nine dozen). We find that by doing this she has ample time for creasing out her work, or boning out as some mills term it.

As soon as the operator finishes footing a topper's lot, she takes it back to the stock room and this serial number is marked off and she is given another lot of work, and the new serial number is marked down as in the case of the first; this makes the topper always have three lots out. On the lot which the topper has just brought back already footed to the stock room, the operator while footing it has made out the ticket on the bag for himself as well as his topper, and the stock room man tears off the ticket filled out by the operator and gives the two credit for it.

You will notice there is quite a bit of efficiency in this system as the work is almost kept in constant rotation until it is received back at the stock room. I know someone will say, "You never saw a topper that wouldn't spoil a few tops." Naturally they all will, but for each spoiled top that a topper turns in, we give her a good stocking and mark this down and at the end of the week we check up to see how many tops are spoiled by each topper. You will notice that this particular system does not give a topper any chance to do away with her spoiled tops or get by without making up her seconds, because the work must all be checked back to the stock room man. On Friday evenings we make all footers even up all toppers' lots so that the next work may start out anew, and this lets us keep our stock room in strict order. I hold each topper responsible for every dozen that she is given at the stock room. Anyone having trouble with inventory coming out right will find this a good method of keeping tab on all work.

The Footer Operation

Some mill men will not agree with me when I say that I hold the footer responsible for all bad topping (not topper menders). I will make myself explicit: If a footer is not held responsible for bad topping, do you realize that anything a topper puts on the machine will be run off and turned in with good work? To the contrary, with our system, the footer will make the topper top her bad work over. Isn't this a saving of silk? Toppers are not as cautious as they would be if the operator is not responsible. Some might say, "Make the topper pay for all bad topping." Listen, you have not only wasted silk but your help is making bad work when it could have been avoided. Train your help to do things right from the start, and don't encourage them to do bad work.

The Footer Inspection

The footer inspection is one that few mills believe pays for itself. I would say that ordinarily it doesn't, but if worked out as we have found it best to work it out it will. The footer work comes to the inspector's table and here we have one girl who does the charging and also inspects, while the other girls inspect altogether and this one girl gives the footer and topper number and how many menders to charge to the girl that has the charge sheet. These girls inspect from where the stocking was put on by the topper through the toe and this inspection is all done by hand.

Here we come upon a stocking that cannot be mended and the inspector takes it back to the footer and he gives her another footed stocking and in the meantime he makes this stocking over. Isn't this a saving over paying the seamer, looper, and final inspector for doing a bad stocking? If the footer inspector hadn't caught it we would have to make a top-on out of it for the legger after the final inspector had thrown it out as a rag. You would be surprised to know that there are quite a few footer operators who really don't know what can be mended and what can't be mended. On the other hand there

are those who don't care and turn in anything. We think these inspectors come in handy. The system not only saves silk, but it teaches the help what to turn in as a mender.

These inspectors count each dozen as they inspect them, and then the only thing that the final inspector will find wrong is just what the seamer or looper makes. These footer inspectors can inspect from 90 to 100 dozen a day.

Now after you see that the footer and topper bad work has been eliminated, discontinue the inspection for awhile and then about once a month let a girl inspect about six or eight dozen of each operator's work for bad work. I have an extra topper that I use to go through and check the footer work each month. Therefore it doesn't cost me anything to do this inspecting because when she isn't topping she has ample time to do this. We consider our inspectors as the watch-dogs of our mills.

A Few Practical Hints

Here are a few hints that I have worked out that might be of use to someone else. As long as we have ten cent stores, most of our operators are going to purchase their screw drivers there. These screw drivers are always too soft and therefore they ruin the screws in the topper bars when they try to unscrew them. I have put on all of my bars a small light weight bar running the entire length of the screws in order to cover each screw so as to eliminate any pull on the stocking. The light weight bars are screwed down to the topper bar with two 4/32 screws, one on each end. Most of these pulls originate when the topper fills her bars and stacks them in the bar holder, and these lightweight strips keep the hose from touching the footer bar screws, therefore eliminating pulls.

Most mills are still using the same footer hooks to hook up the stocking when it is transferred to the footer by the topper as when the machine was first started. It is absolutely impossible for a piece of metal to touch a fine gauge stocking without sooner or later causing a pull. We have cut all of our footer hooks bars down to about seven inches in length and on each end have put a hook. In the middle, instead of using a hook, I use two pieces of felt. The bottom felt is 1¼-inch round while the other piece used on top is ⅞-inch round. We put a hole through both of the felts and then run a rivet through them and brad the rivet to the footer hook bar. Then we take a piece of music wire or brass wire and make a supporter, similar to an overall fastener, which is fastened to the main strap by a rivet or paper fastener. Then we measure the piece that we use for fastening the wire hook to the length of where this hook will come between the two felts and touch the rivet. (We use just an ordinary hollow brass rivet about ⅛-inch round and about 1-inch long.) This felt I am speaking of is not the ordinary felt that we use for pads in our moistening trough, but it has a thread woven in it to give it more of a body. These straps may be made at a cost of about $1.00 a machine which is very cheap compared to what these pulls amount to in a year's time.

CONTRIBUTOR NO. 6365.

More on Zinc Soap Spots

EDITOR COTTON:

Replying to the recent query of "CONTRIBUTOR NO. 6499" (page 137, May COTTON) regarding the zinc soap spots caused by the use of a sulphoxalate stripping agent, I would say that he is using the wrong type of stripper. This may be a difference of opinion between us dyers but results are the things that count. There are strippers and strippers with worlds of difference between ones supposedly the same.

I have been using a hydrosulphite stripper for the past five years, and it has always given the same uniform results. Once I strayed from the straight and narrow and gave a personal friend an order for another hydrosulphite stripper. He assured me that it was regular hydrosulphite and exactly the same as my regular stock. Brother, I mean to tell you that I was rudely awakened when I was confronted by the worst mess of zinc soap spots that I had ever seen. The lots looked as if all the discarded chewing gum from a stenographers' convention had been thrown in and partially dissolved on the goods. Large balls were on the inside of each stocking and after spending three hours dissolving them, I was a sadder and wiser man. The trial stripper was returned and I made a small packet of the chewing-wax-zinc-oxide-curd to keep in my desk. When a salesman comes in and starts talking hydrosulphite stripper, I reach in the drawer and pull out the curd and silently offer it to him. It saves my breath and helps my sales resistance. Now don't get the idea that I am a one-track crank, but so many strange things happen in the dye-house that are hard to account for; why not let well enough alone?

In my opinion, "CONTRIBUTOR NO. 6499" should use a good type of hydrosulphite stripper and not a sulphoxalate. Sulphoxalate strippers are used for wool stripping and not for silk full-fashioned hosiery unless it is for the removal of vat-dyed or indanthrene picot tops.

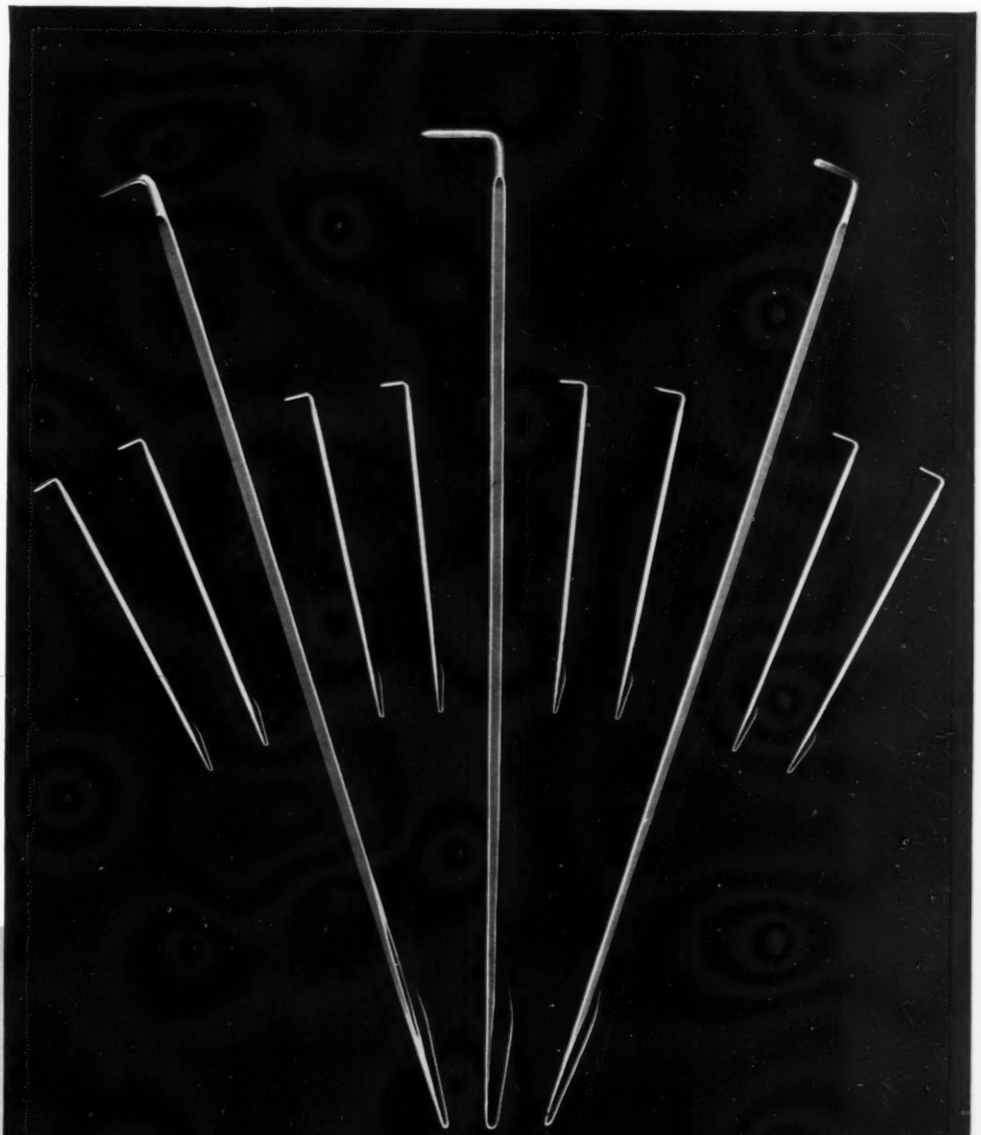
If it is absolutely necessary to continue the stripping with the chemical that is causing the trouble, he will find it most advantageous to remove the zinc oxide and other finishing compounds that cause this precipitation before stripping. He may do this by giving the goods a 3 per cent hot ammonia scour for about fifteen minutes. Then drop this bath and give the goods a warm rinse. This should remove all finishing compounds, oils and softening agents that are the cause of the difficulty.

Sulphoxalate strippers have no reducing value at 180 to 212 degrees F, without the addition of an acid. Weak acetic acid is generally used because it breaks down the sulphoxalate and starts the reduction. The acid reaction then forms an almost insoluble curd of the zinc and finishing compounds.

I have removed these spots with a good solvent such as ethylene dichloride and ammonia in a bath at 160 degrees F. It is best not to run the bath too warm at first because the ethylene dichloride is volatile and will leave the machine.

CONTRIBUTOR NO. 6524

Uniformity in the length, width and thickness of the needles you use is a vital factor in the production of smooth, evenly knitted fabrics. For the dimensions of the needles determine to a great extent the size and evenness of the stitches they produce. Torrington assures uniform dimensions by *machine manufacture*. Torrington Spring Beard Needles and Torrington Sinkers are made by machines that are consistently accurate even in the most delicate operations. If you are searching for better materials to work with—begin with needles . . . and trust Torrington machine precision to give you that much-to-be-desired dimensional uniformity.



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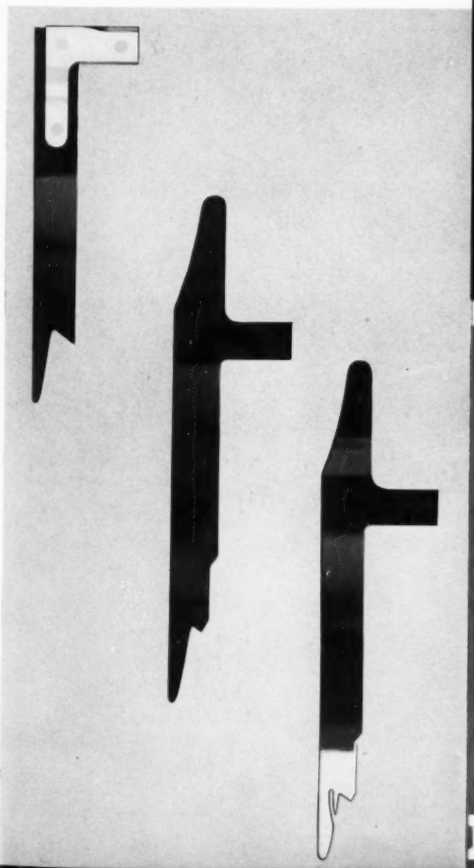
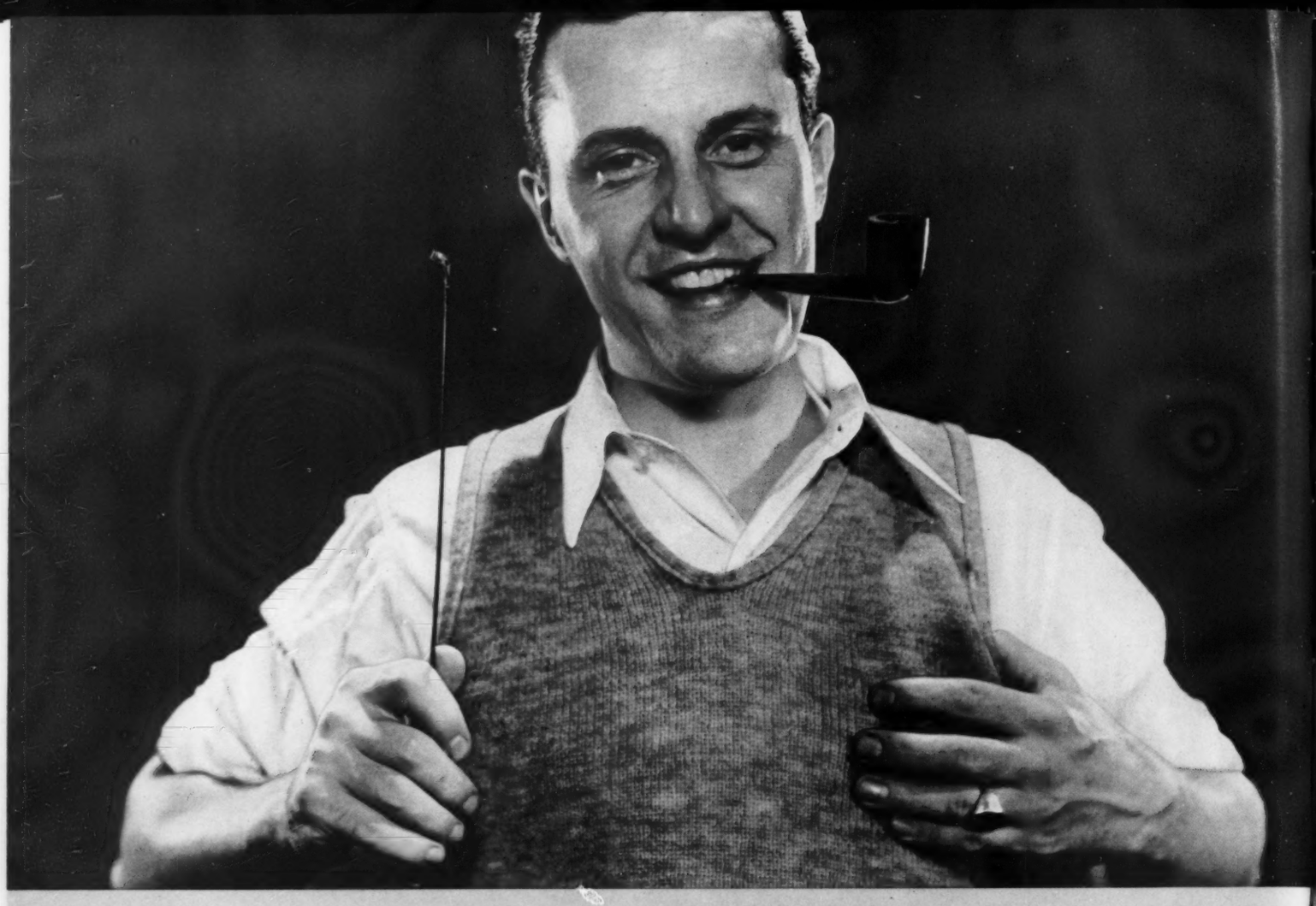


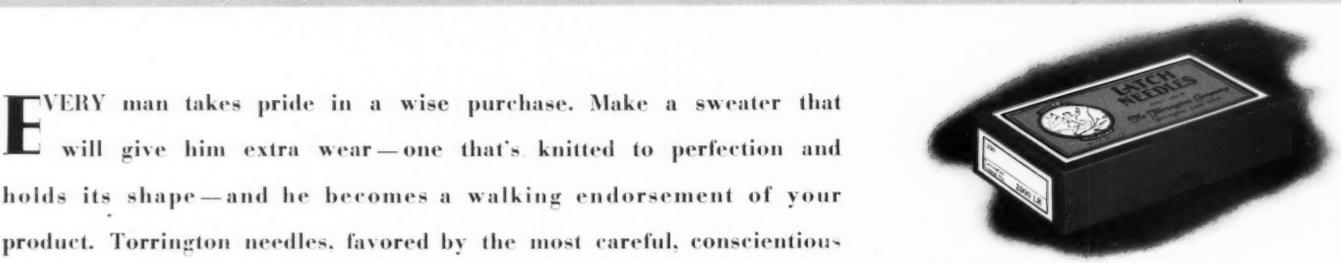
TORRINGTON

NEEDLES and SINKERS



—"and it still looks as good as new!"

EVERY man takes pride in a wise purchase. Make a sweater that will give him extra wear—one that's knitted to perfection and holds its shape—and he becomes a walking endorsement of your product. Torrington needles, favored by the most careful, conscientious knitters, used by the mills that are famous for the quality of their products, will help you do this. Torringtons are machine-made. They possess added smoothness . . . greater uniformity . . . more "resistibility" —all qualities that count in producing top quality merchandise . . . merchandise that wears well because it's made well and gives such good service its owner is proud to say "I've had it for years and it still looks as good as new." . . . There's a Torrington Needle for this type of knitting and every type of knitting.



The Torrington Company

ESTABLISHED 1866

Torrington, Conn., U.S.A.

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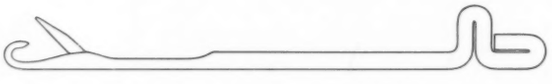

TORRINGTON *Latch* NEEDLES

Dyer Answers Questions on Timing Dye Baths

EDITOR COTTON:

"CONTRIBUTOR No. 6494", in the May issue of COTTON,* seemed to be having trouble in keeping time on his dyebaths and either let them run too long or took them off too early.

Very few dyers that I have seen ever take their stock out of the dyebath at the proper time, but I have found that if the dyebath runs over or under a little, it doesn't make much difference. Of course, the color comes up better if the dyer can get around in time, but when a man is running machines there is always so much to do that he has to let some of the hose run longer than others.

Sometime ago, in dyeing ladies' hose we used the two-bath method and on men's hose we only used one bath. Now we use the single-bath method on everything. We soap the stock off for ten minutes, enter the dyestuff, run for 20 minutes, salt and when the process is complete, we inspect for shade in twenty minutes.

For timing our baths, we have a clock on the wall and a tin dummy clock on each dye machine. When the operator starts a bath that is to be run 20 minutes, he looks at the clock on the wall and turns the dummy clock on the machine 20 minutes ahead of time. Then when the wall clock gets to the same time as the dummy clock, he knows that the dyeing operation is complete. For instance, if the operator begins a bath at 8 o'clock by the regular clock on the wall, he turns the tin clock hand to 8:20. He knows then just when he is supposed to stop the dyebath. As the hands on the regular clock come to 8:20, he stops his dyeing.

We have had these clocks on our machines now for seven years and they are still in good condition.

CONTRIBUTOR No. 6513

Other answers to this question appeared on page 105 July issue, page 123 September issue, and page 169 October 1936 issue. —(The Editor.)

Do Dial Jacks Cause Loose Lines on Seamless Hosiery?

EDITOR COTTON:

We have been having a considerable amount of trouble with loose lines appearing in our seamless hosiery. We can line up the needles and sinkers in a machine and have the stocking fairly well rid of all loose wales, but after running the machine for two or three days they quite often reappear.

Could the dial jacks have anything to do with the loose lines?

One fixer claims jack dials never go off center while another says they do and he wants to line up the jack dials periodically. It occurred to me that it might be a good idea to know what other readers of your "KNITTING KINKS" department have to say for and against lining up jack dials.

We are using the Scott & Williams 280-needle, 3½-inch Model K machine.

CONTRIBUTOR No. 6585

Comments on "Let's Check Down the Line"

EDITOR COTTON:

On page 101 of the August issue of COTTON, "CONTRIBUTOR No. 6552" wrote an interesting article entitled "Let's Check Down the Line". We agree with him throughout the article, but let's reverse the subject and check up the line, or as he says, let the mill owner do some checking.

At one time we were with a mill whose superintendent thought he had the only pair of brains in the organization. He never read his trade journals but merely subscribed to them for the added prestige. He didn't ask questions on technical problems—he answered them. No one but him had any authority in the plant. When orders were to be given an employee he always gave them himself. No overseer had the authority to think for himself, to hire or fire his own help, etc. Even if the general manager hired an employee, this superintendent would soon find some cause to fire him.

When an overseer gave instructions to an employee, the superintendent came around and asked the employee why he was doing the job at all or doing it a certain way. "I want you to do so and so", he would say. If an operative was away from his machine or if his work was not up to standard the superintendent took the matter up with him instead of his overseer. He would even walk up to the overseer and tell him, "You don't need that man today. Send him out".

If an overseer needed work done in the machine shop, or needed electrical repairs, he had to see this superintendent personally instead of the master mechanic or the head of the maintenance department.

Often the overseers and second hands had ideas that they wanted to work—possibly some attachment for the machinery, methods of keeping records, improving conditions, or some suggestion that might result in a saving to the company; the superintendent would not listen to their trying the plan but would wait a few days and tell the general manager that it was his own idea, or he would close the matter entirely. This superintendent was often seen chatting with his favorites over the mill but when he saw the overseers or second hands talking among themselves he bawled them out. He had his favorites in the plant and often sold them something. They purchased to save their jobs.

He thought he was well liked by the employees. He was—to his face, but to his back he was inviting labor trouble.

We wonder if there are superintendents like this now. If so, let them check the *line* (take self-inventory) before checking "down the line". Consider the other fellow. If an overseer makes a mistake, don't bawl him out before the employees. If an operative is not doing satisfactory work, tell the overseer and let him handle the situation. If a second hand makes a suggestion, consider it, it might be beneficial to the company and make money for them.

As "OLD-TIMER" says, "You can't get teamwork unless you give it".

CONTRIBUTOR No. 6583

Information on B-5 Horizontal and Vertical Stripers

EDITOR COTTON:

For the benefit of those knitters using the Model B-5 horizontal and vertical stripers, I want to pass along a few "kinks" and systems that I have used.

When making plaited work the yarns should be correctly separated and the tension should be on the surface yarns only. When making fancy hose on this machine, some difficulty may be encountered with the vertical stripe mis-plaiting. To overcome this trouble we use the following cylinder arrangement on the 36-gauge machine:

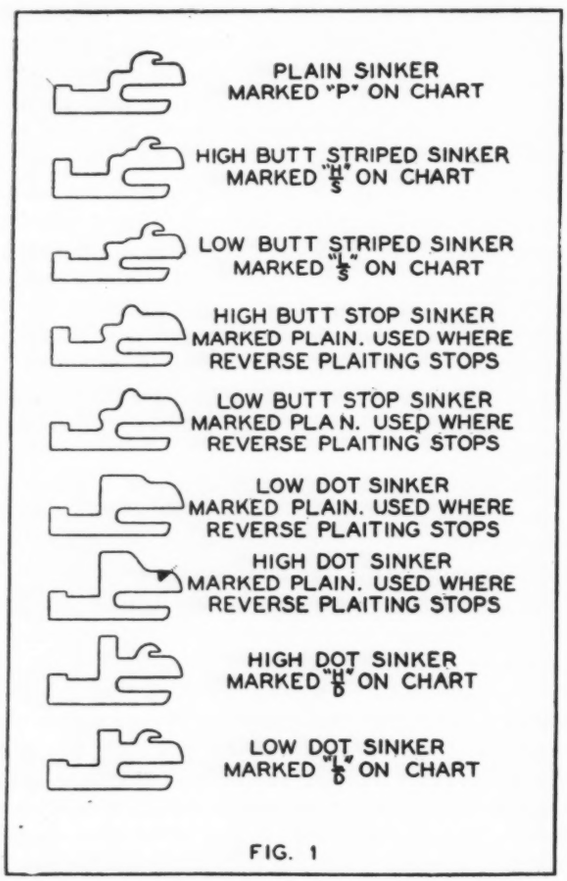
PLAIN SINKER MARKED "P" ON CHART
HIGH BUTT STRIPED SINKER MARKED "H/S" ON CHART
LOW BUTT STRIPED SINKER MARKED "L/S" ON CHART
HIGH BUTT STOP SINKER MARKED PLAIN. USED WHERE REVERSE PLAITING STOPS
LOW BUTT STOP SINKER MARKED PLAIN. USED WHERE REVERSE PLAITING STOPS
LOW DOT SINKER MARKED PLAIN. USED WHERE REVERSE PLAITING STOPS
HIGH DOT SINKER MARKED PLAIN. USED WHERE REVERSE PLAITING STOPS
HIGH DOT SINKER MARKED "H/D" ON CHART
LOW DOT SINKER MARKED "L/D" ON CHART

FIG. 1

First, we fill the cylinder with all 36-gauge No. 84 forward hook needles and lay the patterns without sinkers. Wherever there is a vertical stripe, we use a 36-gauge No. 64 center hook needle. With this set-up we made perfect plaiting in the vertical stripe. At the step of a pattern we also use a hook to start the reverse plaiting. This gives us a perfect start at the reverse and with the aid of a stop sinker, we are able to make a very clear pattern without mis-plaiting marks. Fig. 1 shows sketches of our methods for keeping records when changing the machines. In our system, instead of using the numbers of various kinds of sinkers, we give each of them a name and use letters for the names. We did the same on our pattern drum and cams. This is shown at Fig. 2. Of course, at the start of a yarn change or in operating cam controls for the sinkers, we use a cam that has a taper on the front; this is not marked on the sketch but is classed as one of

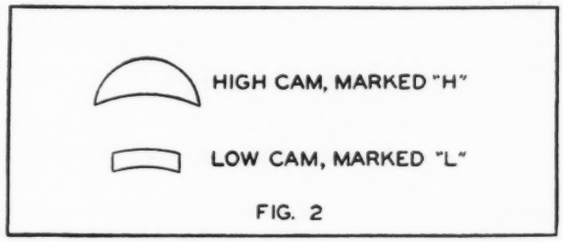

FIG. 2

the cams specified. The various cam links are marked on the chart by counting in numerals from the left when facing the machine. The starting point on the pattern drum is marked by the center punch marks of the side of the drum at the low tooth of the rack wheel. See Fig. 3 for this chart.

DRUM AND NEEDLE LAYOUT FOR STYLE #.05111

CAM LINES BEGIN WITH 1" LONG BUTT		SINKERS 3⅛ 140		3½ 150		3¾ 160	
#1	#2	P 6 D 2 I 2 D 4 I 2 B 6 P 7 I 2 S 10 I 2 S SEC. #2	REPEAT SEC. #1	P 6 D 2 I 2 D 4 I 2 B 6 P 7 I 2 S 10 I 2 S SEC. #2	REPEAT SEC. #1	REPEAT SEC. #1	REPEAT SEC. #1
—	—						
4-H	8-H						
3-L	11-O						
2-O	5-H						
4-L							
1-O							
4-L							
2-O							
3-L							
1-H							
#3	#4	P 7 D 2 I 2 D 4 I 2 B 6 P 7 I 2 S 3 S #1 LB NEE-DLE	REPEAT SEC. #2	P 7 D 2 I 2 D 4 I 2 D 6 P 7 I 2 S 6 S #1 LB NEE-DLE	REPEAT SEC. #2	P 6 D 2 I 2 D 6 P I 2 S 6 S #1 LB NEE-DLE	REPEAT SEC. #1
1-O	1-H						
1-H	1-O						
6-O	22-H						
11-H							
5-O							
	#7						
	7-L						
	2-O						
	2-L						
	5-H						
	2-L						
	2-O						
	4-L						

FIG. 3

When making fancy hose, we had self-cuffs on them and we were able to make a full size pattern or a pattern half the actual size of the leg pattern by means of a device to control the racking of the pattern drum. See Fig. 4. This device is controlled by the motion of the main drum. It is screwed to the frame of the machine at the point where the control for the rack wheel and pawl work. It is

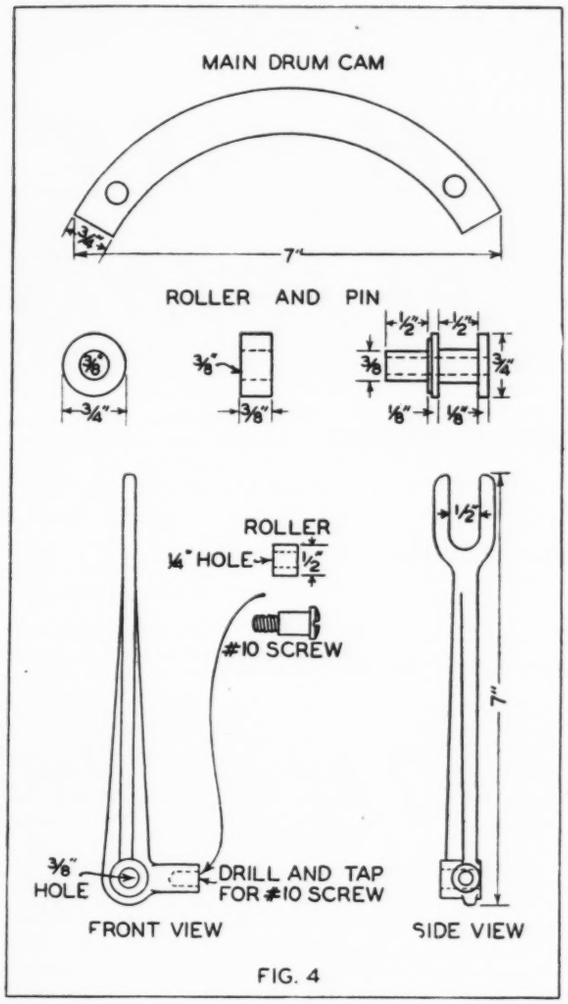

FIG. 4

necessary to remove the roller that is there and to replace it with the one that goes with this device. The new roller is controlled by the fork of the part as shown. In the operation of this device, the roller is withdrawn from the cam on the racker, thereby causing the racking pawl to rack every tooth instead of every other tooth of the pattern drum. When the pattern in the cuff is completed, the motion of the main drum allows the roller to recede to the old position. With this device we can make two patterns in cuff half the size of the leg pattern. The cam to be used on the main drum is made of 3/16-inch flat iron finish. Fig. 5 gives another view which should clarify the arrangement. CONTRIBUTOR NO. 6546

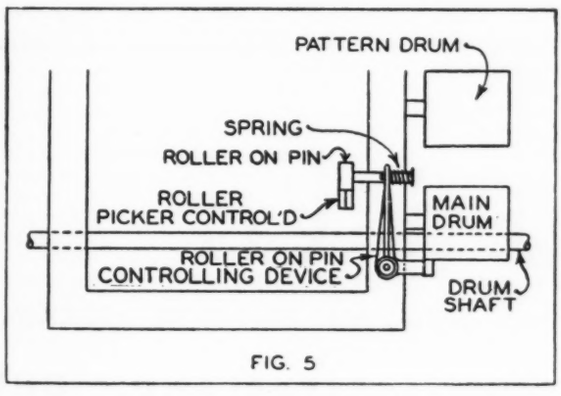

FIG. 5

Should Full-Fashioned Dividers Be Same Length as Sinkers?

We shall welcome thorough discussions of this point from practical men . . . . . .

EDITOR COTTON:

In checking sinkers and dividers for our 42-gauge full-fashioned machines, we note that the dividers and split dividers are approximately .006-inch longer from the inside of the butt to the inside of the throat than are the sinkers that we use with them.

I cannot see from the operation of the machine wherein these differences in measurement are an advantage, since it would appear that exact uniformity in these measurements would be more desirable. Possibly some of your readers have had more experience on this matter than has the writer, and we would appreciate any comments on it, giving the experience and point of view of practical men regarding it.

CONTRIBUTOR NO. 6591

Dye Does Not Cut Stitches

EDITOR COTTON:

I notice on page 115 of the July issue of COTTON that "CONTRIBUTOR NO. 6489" is having trouble with the stitches in the hose being cut when stemming or sewing-in clocks on his Merrow machines. He seems to lay the cause of this to an excess of dye being on the dark yarn.

It is true that the darker shades of dye seem to dye heavier than the lighter shades but I don't think his trouble comes from the dye on the yarn at all. In fact, I don't see how the surplus dye could possibly cut a stitch in the half-hose.

There may be a burr on the needle that is causing the damage or the knife may be cutting the stitches. It is possible that the needle may strike the presser foot and be broken or burred. We have trouble like this ourselves but we just keep adjusting the machine and before long it is running all right. In fact, we have, at times, adjusted so much that we really don't know what we did to correct the cutting.

I believe the header causes more damage than the stemmer because it is jumping around so fast that a severe strain is imparted to the yarn in the hose.

In our plant the thread is oiled and is soft when it reaches the stemmer. We also block-dye our thread so that we only have a couple of inches of dark thread before the white comes in again. This is one reason why I can't believe it is the dye on the yarn that breaks the stitches because we have the trouble on light as well as dark yarn.

I think this trouble bothers all hosiery men. Maybe others have ideas on this.

CONTRIBUTOR NO. 6515

1849—a strike is a find of precious metal where men hasten to without thinking.

1935—a strike is the loss of precious metal where men don't hasten to with thinking.

Check ✓ THIS YARN ON 3 VITAL POINTS

1 *Standardized*, FOR EASIER HANDLING ON MACHINES

2 *Standardized*, TO DYE EVENLY

3 *Advertised*, TO SELL QUICKLY

CAPTURE THE MASS MARKET BY KNITTING STOCKINGS OF FAMOUS Spun-lo RAYON

Years of testing and experimenting . . . years of endless toil by laboratory experts, manufacturing experts were necessary to develop this rayon yarn of standardized quality and long life.

It CUTS your knitting costs to the bone by helping you to step up machine activity. It cuts your "seconds" to a minimum by assuring uniform lengths, uniform dyeing and uniform appearance. Two immediate savings for you

from using SPUN-LO . . . yet it costs no more than ordinary yarn.

And stockings knitted of this superior yarn have ready sale. Buyers everywhere know it, know its better style, its ability to take it in all kinds of wear.

Use the SPUN-LO transfer and cash in on consumer acceptance of the name "SPUN-LO" due to national advertising in women's magazines

Spun-lo

RAYON YARN MAKES BETTER STOCKINGS

INDUSTRIAL RAYON CORPORATION · CLEVELAND, OHIO

THE KNIT GOODS MARKETS . .

All Branches of the Knit Goods Industry More Active Seasonally: Underwear Sales for Next Spring

Philadelphia, October 16, 1936.

KNIT GOODS are active in all branches, not only for the fall and winter seasons, but manufacturers of underwear have booked a large volume of business for the spring season. Deliveries of many types of fall and winter knit goods are several weeks late and wholesalers are regististering strong complaints regarding their loss of business because they have been unable to make deliveries wanted by retailers on fall numbers. Business in many lines of knit goods would have been larger during the last month had it not been for the warm weather experienced in many sections of the country during recent weeks. This has handicapped retailers to a certain extent but they feel that this will be more than made up later on because retail sales in practically all sections of the country are running considerably higher than at this time a year ago. Prices are mainly unchanged but low-end full-fashioned merchandise has been strong.

Good Forward Business for Hosiery Mills

Hosiery manufacturers are in possession of a good amount of forward business, it being estimated that they have four to five weeks' orders in hand and prices are displaying a firm tone with advances being registered in some sections of the market. A feature of the situation is the astounding volume that manufacturers of anklets have booked for the 1937 spring season. Not only has buying been several months earlier than usual in these lines, but initial orders have been greatly in excess of those placed during the early part of any season in these lines. There has also been a good demand for full-fashioned lines and most manufacturers are operating on full-time schedules. Buyers are pressing for delivery from many mills, which are behind their schedules and a few reports are heard of speculative buying of goods, particularly full-fashioned merchandise, as a result of buyers' desire to get all the goods they want when they want them.

On the other hand, many mill representatives early in October noted a slight slump in both new business and specification against old orders. They attributed this to warm weather in most sections of the country, which has slowed up retail sales somewhat. Notwithstanding the basically strong market, there are still a few weak spots. For example, on low-end fancy half-hose, price irregularities have occurred despite firmness in all raw material markets. A mill here and there is reported to have lowered its quotations on this type goods 2½ cents or more for no reason except that they needed business. Other sellers complain also about the low prices at which anklet business has been taken for next spring, saying that the basis on which much of this buying has been done allows little or no profit for the manufacturer. This complaint is not general, however, because some of those who have participated in the largest business for spring anklets ever placed up to this time of the year appear reasonably well satisfied with the prices obtained.

On full-fashioned hosiery the market continues firm, low-end goods in the unbranded end being up approximately 15 to 25 cent cents from their lows of this year. Manufacturers are so well fixed for business in these lines that jobbers report they are having a problem securing immediate delivery. Quite a few mills are not only willing but are anxious to accept cancellations and in some cases manufacturers are reported concerned as to how they can possibly get out all the merchandise they have on order for delivery before December 1. Additional firmness has been imparted to the full-fashioned hosiery market by the strike called at the Berkshire Knitting Mills, Reading, Pa., the largest full-fashioned hosiery manufacturing plant in the world, early in October. Should the largest mill be closed down by a strike or lose substantial production over a period of time, this would of course be a bullish influence on full-fashioned hosiery prices for spot and nearby deliveries.

The hosiery union is picketing the Berkshire plant by thousands of employees from knitting plants in the Reading and Philadelphia sections as a protest against what it terms have been violations of the generally accepted working conditions in the hosiery industry. At the present time both sides are refusing to make concessions and some manufacturers feel that considerable production will be lost during the coming weeks by the largest unit in the industry. If this is true, the loss in production would be large enough to be a factor in the entire full-fashioned market, coming as it does at the busiest time of the year for the knitting of hosiery for the fall and holiday trade.

Cooler weather this month compared with many warm days in September, has resulted in improvement in specifications. Branded houses report a fairly steady improvement in volume, although the improvement in sales gains has been far from uniform with all firms. Generally speaking, all mills are well sold ahead for a month or more and in some instances so-called low-end lines have been withdrawn from sale. Expectations in the trade are that additional buying of importance will be apparent in the market during the next few weeks because Christmas requirements have been covered in a very few instances as yet. Prices of full-fashioned lines are firm and despite rumors of offering of small lots of ringless merchandise at low levels, mill representatives declare they know of no numbers of this description of average grade which can be bought for nearby delivery at $5.25. In fact, manufacturers who have business in ringless 4-thread 42-gauge at $5.25 are entirely open to accept cancellations on part of their business because of their belief that higher prices than this are now obtainable.

Mills quoting $5.50 on full-coursed numbers of this character, say they are getting in a good volume of business every day. Improvement in higher price merchandise, which was a growing feature of the market last month, promises to continue right through the active selling season this fall. While this trend to better merchandise will undoubtedly be exaggerated in the sellers' conversation, it cannot be denied that it exists. Aside from low-end numbers, branded house interest is primarily centered about crepe constructions with sales of this style in most instances constantly pushing ahead. The best demand appears to be for 3-threads around the dollar level. The continued interest in knee-length hosiery apparent last month has continued during the last four weeks and although demand has fallen off from the peak of last summer, several houses say that their sales of knee-lengths this month are considerably ahead of the same month last year. Generally, the knee-length is selling better this fall than any similar time in the past.

Colors Lighter

Colors in the larger cities and in the East generally are still definitely on the lighter side, with darker shades receiving more attention in the middle west sections. Reports are that the new rich browns have been very well received although the volume demand is for the neutrals. Any change in branded prices in the immediate future is unlikely, although most manufacturers of these lines feel that their current prices are not in line with market conditions. In this connection, the raw silk market is being watched carefully as the basis for the establishment of next spring's full-fashioned prices, which will be announced in December and January. Some feel that the stronger tone in the raw silk market, better unbranded prices and the prevailing opinion that present branded prices are a little too low, may result in some increases in the spring lists.

Deliveries are a problem for many hosiery manufacturers and this is particularly true of seamless merchandise, especially seasonal goods, such as fall anklets, five-eighths and seven-eighths hosiery, wool and wool mixture half-hose and others. The volume of busi-

The prescription for better knitting

The fabric of every fine quality silk stocking reflects the painstaking care exercised in the making of the needles. Good business demands the best needles. That we are America's largest producers of Spring-Beard Needles and that nearly all manufacturers of fine quality silk stockings are standardized on Royersford Needles is a tribute to satisfactory performance.

ROYERSFORD NEEDLE WORKS, INC., ROYERSFORD, PA. : : SOUTHERN OFFICE: Provident Bldg., Chattanooga, Tenn. : : Spring-Beard Needles, Narrowing Points, Picot Points, Lace Points, Welt Hooks, Transfer Points, Stand Points, Bent Points, Dull Points : : Sinkers, Dividers, Jacks, K.O. Bits : : Thread Holders, Carrier Tubes, Welt Bar Hooks, and Eyelets, Strap Cleats, Plate Hooks, Footer Hooks, Strap Hooks : : R. F. Clamps and Straps, Legger Straps, Tension Wires, Snapper Springs, Mend Hooks —for all machines : : For *Glove and Underwear Industries* — Milanese, Tompkins and Tricot Needles, Milanese and Tompkins Guides, Tram Travelers : : Special orders for machine parts or appliances of any type. Development work confidential.

ROYERSFORD NEEDLES

ness done on spring anklets to date has been so large that a number of mills have completely sold up their offerings for that season and all manufacturers report very heavy bookings for spring. Very large shipments of low-priced seamless hose over the last four months are causing mill representatives to wonder how long the present active pace can be continued. Especially good business in five-eighths length hose is a feature of the children's market, according to the selling agents for several mills. Early delivery demand for five-eighths goods has reached such a large volume that manufacturers would prefer to see it decline because these mills are anxious to get into full production on merchandise for next spring.

Volume on infants' socks as well as for anklets for next spring has been exceptionally heavy. This boom in demand for children's hose has been reflected even in boys' golf hose, which has been a neglected end of the business for several years. In this connection one manufacturer stated that boys' golf hose is the only item in the line on which he can get anything like a fair profit at current prices.

The full-fashioned market still shows peculiarities despite the admittedly tight delivery situation on low-end goods and the fact that better quality merchandise is still to be bought for delivery before Christmas. Although many mills are pushing production desperately to get out goods on time and with the low-end price structure firmer, on the other hand comparatively small lots of 42-gauge stockings are reported still available 25 to 50 cents under what standard mills consider the market price. The selling market is full of reports regarding sales of goods in the gray by manufacturers that ordinarily do not make a practice of selling unfinished goods. If these reports are accurate, they mean that the mills involved either were more desperate for business when they made their gray goods sales than was generally realized, or else they misjudged the character of the market being experienced this fall. It is generally believed that branded houses are now booking business in a very satisfactory volume and that they will have an excellent fall season. On volume unbranded numbers, however, there is a faction in the market which believes that because of the early start of fall buying this year, an earlier than usual slump may be seen.

Advances in Rayon Seamless

An advance of approximately 5 cents a dozen is being quoted by several manufacturers of women's seamless rayon hosiery on deliveries for the first three months of next year. One of these manufacturers pointed out the advance in cotton yarns and the firm rayon yarn market made necessary higher prices on rayon hose for forward delivery. A number of buyers are reported to be sufficiently well sold on the possibility of a general rise in rayon hosiery prices to be willing to make commitments on deliveries through the first quarter of next year at prices in effect for nearby shipments whenever they can find mills willing to take this business.

Ajax Machines May Move South

PHILADELPHIA. Full-fashioned machinery of the Ajax Hosiery Mill, Phoenixville, Pa., which has been closed for several months because of a strike, may be moved to several southern locations where mills already in operation will run it, according to reports in the trade. Stanton D. Sanson, president of the company, which has approximately 100 machines remaining at Phoenixville, some having previously been sold, said that he had no comment to make on the matter at this time because his plans have not been completed yet. It was reported in the trade Sanson has made an arrangement with several southern mills whereby he will ship the Phoenixville machinery to these various plants, which will operate them under their own names in each case. In the absence of confirmation of these reports, it is not known whether such transactions will be outright sales or whether the machines will be operated on a royalty basis.

A decided trend toward improved volume on better quality, fancy half-hose, especially those priced to retail at 35 and 50 cents is noted in a number of sections of the primary market. Mill representatives report a greater interest in these price classes than has been apparent in a number of years. Several selling agencies also report expanding sales of Swiss-clocked half-hose have been noted in several sections of the market. Although these manufacturers are busy and other branches of the hosiery industry are working at capacity, several manufacturers are beginning to sound warnings against over-production. One said in this connection it is better for manufacturers to approach the end of the season short of goods and sell what they have at fair prices than to carry stocks into the low period after Christmas to be sold at whatever prices they will bring. Individual manufacturers should watch their inventories and estimate sales sufficiently far ahead to avoid the risks that come with exceptionally active markets such as we are now witnessing.

The possibility that manufacturers will not exercise due caution in their production schedules is about the only thing now in sight that could seriously halt the apparent trend toward a materially better market situation for full-fashioned hosiery. The heavy volume of business placed on unbranded merchandise, chiefly lower priced goods, through the last four months has actually brought about a shortage in quick-delivery goods. Manufacturers in need of additional 42-gauge merchandise they have been unable to make in their own plants have found it difficult and almost impossible to locate other mills of fair size which can give them goods in the gray in the near future. Continued heavy shipments for the next few weeks at least are clearly indicated. However, it seems obvious to several important observers in the market that business cannot hold indefinitely through the fall at its present active pace.

If manufacturers are fooled into continuing their present active schedules after demand tapers off seasonally, their chances of pricing spring lines at profitable levels will be *nil*. Hosiery jobbers in this city have been doing exceptionally active business during the last month, several showing gains of 20 to 30 per cent over the same weeks last year. Prices in the wholesale market are firm but mainly unchanged, the exceptions being in low-end full-fashioned hosiery and some cotton numbers. Deliveries are late in many lines from manufacturers but it is most apparent in five-eighths goods. In this connection, jobbers say many knitters were late in getting on fall anklets and boys' hose, so that this delayed their initial fall shipments.

The reason they started late on fall lines was that they enjoyed such a healthy demand for summer goods they were unable to swing over at their usual time. Jobbers say solid colors are the best sellers in cheaper anklets, while in the next higher priced bracket, novelty effects are selling and there is also a healthy interest in stripes. Consumers that took to men's slacks this summer for comfort fort and looseness are now asking for half-hose with elastic top, and jobbers say these lines are selling in larger volume than any fall season since they were introduced. These garments, of course, eliminate the necessity of wearing garters. In some instances lines of this type to retail at 25 cents a pair have been the best sellers with jobbers. In women's seamless there is a good demand in the wholesale trade and some delay has occurred in deliveries due to the strike at the largest plant making this type goods.

Ringless Suit to Be Settled Out of Court?

In this connection, recent reports are that the Hanes Hosiery Mills Co. is now operating and a statement issued by an official of that company estimated that only a couple of hundred out of their 1,800 employees were still out. The mill was reopened on petition of 1,400 of their employees, who asserted they were satisfied with working conditions and wages that were in effect when the mill closed. The president of this company asserted that wages are from 10 to 75 per cent above those set out under the NRA hosiery code and he added that after a careful survey of the industry it was found that their wages are equal to, and in a great majority of cases substantially above, those of other mills in this branch of the industry.

It is reported that negotiations are now under way looking to an early out-of-court settlement of the ringless hosiery patent dispute involving a majority of the largest manufacturers of full-fashioned hosiery in the country. It is understood as a result of these negotiations that the ringless suit scheduled to start September 22 in the Federal Court here was postponed until January 11. Hearing the Canadian patent action also scheduled for September 22, was indefinitely postponed. An official of the Textile Patents Corporation has stated that definite infor-

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mation regarding the outcome of the negotiations would be available within two or three weeks. He declared the present negotiations represented the final effort of his group to reach amicable agreement with the opposition without having the matter go to court. If the negotiations are unsuccessful, this official stated, the Textile Patents Corporation will seek early adjudication of the patent rights and proceed with its plans to add stability to the ringless hosiery market with the aid of its 120 licensees. It is understood in the trade that a committee of the outside group mills has been authorized by the group to negotiate with the Textile Patents Corporation.

It is felt in usually well informed quarters of the market that the present negotiations will probably be successful. This is based largely on the apparent growth of sentiment in the industry to the effect that a meeting outside of court is infinitely to be preferred and less expensive than the long drawn out bitter legal battle which is the only alternative. Hearing of the patent action of Belding-Corticelli, Ltd., of Montreal and Toronto, Canada, and others against Charles Kaufman, of New York, to nullify the Kaufman patent on so-called ringless hosiery, scheduled for last week, has again been postponed. No definite date for a hearing was made known.

Is Jap Situation Clearing Up?

Large buyers from the wholesale dry goods trade have been finding recently that Japanese hosiery was being offered to them less freely than for a long time. Also they have found that prices on these imported numbers have been advancing materially over the previous low quotations. The explanation for the change in this situation, according to several large importers of Japanese hosiery, is that the investigation started lately by the Federal Trade Commission on complaint of the National Association of Hosiery Manufacturers has necessarily compelled them to go slowly in contracting for further supplies from Japan. No one knows, they say, what the outcome of the tariff probe may be, whether a higher duty or a change in valuation basis. In the meantime, it is only good business not to be obligated to take quantities of merchandise that may be subject to increased import duties on arriving here.

Importers admit that prices on large selling numbers from Japan have been rising, the advance amounting in some instances to as much as 15 per cent over the low, but in addition to the smaller stocks in sight, which would tend to raise prices, there is the additional and important factor of action being taken by the Japanese industry to overcome some of the opposition here to this foreign merchandise. The Japanese hosiery manufacturers and exporters have, for one thing, started to put into effect something on the order of a control tax on hosiery to be shipped here. One leading importing house stated that the tax in Japan of about 3 cents a dozen, meaning in reality about 5 cents a dozen on goods landed here, was not in effect. Likewise, hosiery manufacturers in Japan are keeping better supervision of all exports to this country with the possible effect of establishing quotas, so that the opposition of the domestic industry would be lessened.

Members of the staff of the Tariff Commission have recently been in the New York market investigating the import business in Japanese hosiery and have been given every co-operation by importers in securing full information on the subject. Advances noted in large-selling Japanese hosiery numbers, such as men's random socks and men's cotton and rayon fancies, include a recent quotation of 77½ cents a dozen on Japanese random numbers against a price not long ago of 70 cents.

Blood Labor Hearing Postponed until March

PHILADELPHIA. Over the strenuous protest of counsel for the National Labor Relations Board, the United States Circuit Court here postponed until the March term the hearing on the appeal of John Blood & Co., Inc., hosiery manufacturers, this city and Boyertown, Pa., from the refusal of Federal District Judge William H. Kirkpatrick, to restrain inforcement of the Wagner Labor Law. The Blood company sought an injunction to restrain the labor board from holding a meeting to determine whether the employees' own shop committee or Branch 69 of the American Federation of Hosiery Workers should be the accredited representatives of the workers at the Boyertown plant in collective bargaining. Judge Kirkpatrick passed neither on the constitutionality of the Wagner Bill nor on the board's motion to dismiss the suit, but he refused an injunction on the ground that no harm would be done to the Blood company by the meeting being held.

Underwear Manufacturers on Rush Schedules Important Contracting in Spring Lines

As is usually the case, the underwear section of the textile industry is trailing all other branches so far as price advances commensurate with rising costs in manufacturing are concerned. Underwear manufacturers have, for many years, observed other manufacturers of cotton goods marking up their prices as conditions demanded, while they continue to take business at old levels. It is the same just at present when greatly increased demand and higher cotton have brought proportionate advances in the prices of many lines of cotton goods but underwear manufacturers are now selling for next spring the larger part of their production and prices for the most part are on no higher level than earlier this year, when business had not reached its present peak and cotton and yarns were much lower than at present.

In this connection, recent advances in the broadcloth market have caused some manufacturers making men's shorts to raise their prices for the next spring season. One large manufacturer has just advanced the price of its 80x60 number 5 cents a dozen. This mill has already booked a large volume of business for next season and with the sharp rise in cloth prices, since its underwear prices were made sometime ago, it is necessarily compelled to adjust the broadcloth shorts in line with the new cloth prices. It is the opinion in the market that this advance marks the beginning of further price rises in similar merchandise. There is also a trend toward advances in better qualities of men's broadcloth shorts, such as the preshrunk numbers.

Orders being taken by underwear salesmen now on the road for next spring are running far ahead of those taken a year ago from the same wholesaler. Increases of 25 per cent over last year are quite common and there are many orders that run much larger than that. The explanation is that business with wholesalers has been good all this season in lightweight underwear and stocks of both the wholesaler and retailer are in good shape, giving them confidence to buy ahead. Prices likewise for next spring, as is well known, are considered cheap, making buyers feel that they can operate safely and extensively.

Salesmen who have been on the road already for next season are finding that their customers are inquiring about deliveries on fall goods and are also ready to put down new heavyweight business where reasonable deliveries are obtainable. In this way quite a number of mills making men's cotton ribbed goods are already considerably behind on fall shipments. The larger mills are frankly admitting that they cannot promise early deliveries, some not before the middle of November and buyers therefore are turning to other sources.

Salesmen claim that the $1.50 price seems to have become well fixed in the minds of many buyers as a standard price for another season in men's combed athletic shirts. This arises from the fact that some mills have been quoting at that level but other mills, it is recognized, have gone lower. The usual competitive prices in the men's lightweight suits is noted where salesmen have attempted to book orders for next spring delivery. In men's summer ribbed goods several mills are quoting suits of this kind as low as $3.75 a dozen. The amount of new business coming in for both men's athletic shirts and woven broadcloth shirts is surprising manufacturers. It is taken for granted that lightweight underwear sells to a certain degree the whole year around, but the volume of this type moving this year, at this late date, is well above the average.

There has been a good volume of new fall business in men's and boys' cotton numbers for fall for delivery at the end of November and into December. This business was taken at the advanced prices that such mills have been quoting on cotton ribbed goods for the past few

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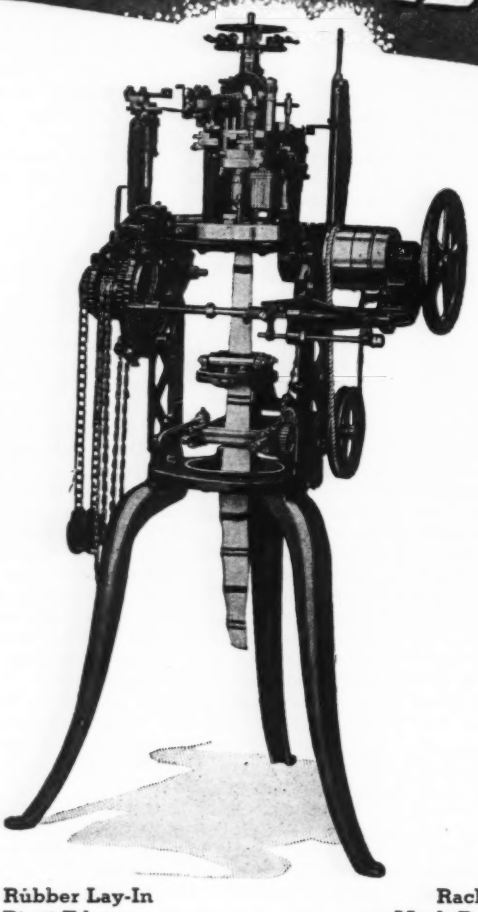

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months. Reports of fall business with leading mail order houses are favorable and some of these buyers have found that they have to buy additional quantities for delivery late this year. Among some of the buyers there is an impression that the situation among the mills making heavy goods will be more acute as to delivery late in November than it is now. This is the reason for their preparations at this time.

A feature of the next spring buying of men's underwear is the demand for a larger number of styles. There is not, in other words, a concentration on a few items such as in many seasons past. For next year salesmen are finding that most buyers have an interest in something besides the staple shirts and shorts. Various kinds of men's union suits are having a better demand than for years. The cheaper carded ribbed suits and the combed numbers are attracting attention with competition keen. There is also a growing interest in the two-button shoulder suit, which has now become a staple. Also the knit brief short has made a place for itself in the new spring line and important volume has already been booked for spring.

Although spring coverage in polo shirts has not been large relatively as in underwear, there are signs that this is about to begin. More innovations in polo shirt styling are evident and this is one reason why buyers are taking their time in operating for next season. While there is the customary interest in the very cheap polo shirt numbers, more inquiries about better qualities are coming through. There are combinations of rayon and cotton from $4.50 a dozen and up, also fancy striped effects on the Basque shirt orders, these being also a combination of rayon and cotton. Also some mills are showing one or two numbers of spun rayon and cotton polo shirts. The tendency in these finer knitted polos is to use the button-finish, usually three buttons. Lace and eyelet necks are not so well adapted for these styles. During the last few days, it is reported that one of the large chain buyers placed an order for 150,000 dozens of men's and boys' polo shirts for next spring delivery.

Ringless Suit Postponed until January 11

PHILADELPHIA. Trial of the ringless hosiery suit has been postponed to January 11, 1937, by Judge Oliver B. Dickinson of the United States District Court here. There was no open court hearing connected with the postponement. Attorneys informing the court that all parties had agreed to the continuance and the clerk so informed Judge Dickinson, who assented and fixed the new date for trial. Two weeks have been allotted for the trial of the litigation, which will also include the anti-trust suit Rosedale Knitting Mills filed against Julius Kayser, Textile Patents Corp., and other members of the so-called patent pool, which allegedly controls the ringless hosiery branch of the trade. It had been planned to try both the Kayser and Textile Patents infringement suits against Rosedale and the latter's anti-trust suit, which charges the plaintiffs with being in an illegal combination in restraint of trade. The same arrangements apply to the trial set for next January.

Outerwear Manufacturers Busy But Season Started Late; Deliveries Tight

Some buyers of knitted outerwear now in the market are finding mills generally well sold for weeks ahead and for this reason are stating that next year they will operate earlier than they did this year. Selling agents complain that much of their fall business this year was not booked until after the first of June. As a result mills have not been able to give the deliveries wanted. They are hoping that buyers are serious when they say next year will be different. For this reason it is probable manufacturers will give buyers an opportunity to place next fall's business as early as right after the first of the new year. Lines of outerwear to the wholesale trade may therefore be shown not later than February 1.

Lines of men's and women's swim suits are being shown by different manufacturers for the new season. Makers of the better numbers of men's worsted trunks claim that prices are up about 5 per cent on the average for next spring. Mills making the popular priced trunks in the $6.50 to $8.00 range for the 100 per cent worsted trunks have found that the Fall-west is buying heavily for next year. This is the usual tip-off in the bathing suit business for an active season ahead. Staple sweater numbers are now in good demand and there has been no indication of a passing of the mohair brush effects which have been popular. The explanation is that the mohair presents a price and style combination that is hard to beat.

National Erie Black NRG

National Aniline & Chemical Company, Inc., 40 Rector St., New York, N. Y., has released a leaflet describing and giving the properties and fastness of the dye, National Erie Black NRG, which is similar in properties to the well known National Erie Black NR Extra and is intermediate in shade between it and National Erie Black NCW. The National Erie Black NRG dye is said to possess a generally good fastness, has good solubility and is an excellent cold dyeing color.

Catalog by Barrett-Cravens

Barrett-Cravens Company, Chicago, Ill., has made available one of the largest catalogs on materials handling equipment ever produced. It is a 124-page book, 8½x11 inches, sewed, and containing over 385 illustrations. The illustrations cover the application and the savings reasonably to be expected through the use of the lift-trucks, skids, portable elevators, steel storage racks, floor-to-floor elevators, drain racks, and barrel trucks. It is listed as Catalog No. 500.

Textile School of N. C. State Breaks Attendance Records

For 5 consecutive years the textile school of North Carolina State College, which opened its fall session on September 16, has surpassed all previous attendance records. This fall, with a registration of 331, the textile school has drawn students from 21 states and 3 foreign countries, namely, Canada, Mexico, and Turkey. Practically 80 per cent of 264 of the textile students are from North Carolina. The teaching staff of the textile school has been enlarged and new equipment has been added to take care of the increased enrollment.

New Office in New England by Leeds & Northrup Company

Leeds & Northrup Company, 4901 Stenton Ave., Philadelphia, Pa., makers of electrical measuring instruments, potentiometer pyrometers, electric heat treating furnaces, and automatic controls, has opened a new office at 422 Chamber of Commerce Building, Boston. This office is staffed for consulting and sales engineering service.

Catalog by Leeds & Northrup

Leeds & Northrup Company, 4902 Stenton Ave., Philadelphia, Pa., has published a new 52-page catalog that is illustrated and written in simple, non-technical language describing "Micromax Thermocouple Pyrometers". It explains the potentiometer method of measurement, the operation of the rugged, yet simple, mechanisms through which this balance method is made available to the industry. The new Silver-Anniversary Micromax (see page 72, July COTTON), announced in the 25th year of the company's origination, is described in detail. It is explained that this instrument keeps ten inches of record always visible, while a bold pointer enables the operator to read temperature at a glance. The instrument can also be equipped to operate signals and automatic controls, and is available for measuring not only temperature, but CO_2, liquid level, valve position, speed, smoke density, chemical strength, pH, frequency, load, voltage, etc. The new catalog contains information on the pyrometers for various performances.

REVIEW OF THE YARN MARKETS

Yarns Seasonally Active in Respect to Deliveries But New Cotton Orders Smaller

Philadelphia, Pa., October 16, 1936.

WHILE cotton yarns have been in active demand the last month new poundage did not quite come up to that of August but the difference with most spinners was slight and a few report that new business was slightly larger. So far in October interest has displayed a tendency to fall off, many buyers having deferred new commitments until the October Government crop report was issued. Since the report there has been some buying that was delayed but new business does not seem to get back to the peaks of last July in many cases.

Many manufacturers are now covered ahead for several months and some do not see the necessity of buying more now. They would do so on a break but if prices continue where they are some say they will not buy ahead so far. There are others who point to their active booking of new goods orders, some for next spring shipment, and say these make it necessary for them to buy much more yarn in the coming months than they have already bought. Taking these two viewpoints many sellers say while business later this year may be off the peak rates of buying still poundage will be very good.

There has been little change in the price level this month and most sellers are firmer at the list than they were a month ago. This is due to their well sold ahead condition, some spinners having a good volume of business now into the first quarter of 1937, this being true for example in single combed which is being extensively used in underwear, polo shirts, and other lines this year and for spring.

Some producers of single combed yarn have broken records during the month in deliveries which have been at peak rates for many years. These mills are working 80 hours per week in conformance with their adherence to the former code standards in most instances so that production for the hours worked has been remarkable. Some of these producers have orders ahead to run them during the next four months but others need additional business for the next few weeks and to secure this a few have been quoting low prices on such counts as 30s single, which is held at 37 to 38 cents in contrast to sales of sizable amounts during the last few weeks at 36 cents or even a shade less.

Demand for two-ply carded weaving has been excellent during the last month, so much so in fact that prices of these yarns have got out of line with the rest of the carded market, being quoted in some instances 2 to 3 cents higher than the corresponding count in singles. Sales of 20s two-ply have been at 29½ cents whereas the same count in single knitting have been made at 27 cents or even less. Of carded weaving counts the demand for 20s two-ply has been outstanding and far in excess of any other number. There has also been a good demand for 30s two-ply from a variety of trades but a particularly strong demand for this size from manufacturers of fabrics used for lining automobiles, which requires a high-grade yarn that has been selling during the last couple of weeks at 34½ cents.

Pressure for deliveries is now the most noticeable feature of the sales yarn market, reflecting the strong demand for cotton goods of all descriptions for fall and even next spring shipments. This condition is reflected in the large shipments of mercerized yarns now being made. Processors have not been booking new business of importance during the last month but they are actively engaged in making large shipments on old contracts and in many instances deliveries are being made much faster than the original contracts specified. Prices of mercerized remain unchanged, basis 68 cents for 60s two-ply ungassed. Manufacturers of anklets are receiving a good volume of business already for next spring's lines and they are calling on mercerizers for sizable quantities of yarn for this purpose.

Worsted Yarns Improve Seasonably But Poundage is Under That of Last Year; Prices Unchanged and Barely Steady

Outerwear manufacturers are now busy on the heavyweight lines of sweaters, sport coats and infants' wear but manufacturers of bathing suits have not yet swung into active production of the 1937 lines. While these mills are busy seasonally, their orders this season were slow in developing, many buyers having placed their orders a couple of months later this season than they did a year ago. This condition has been reflected in the slowness of the yarn demand and is one reason why prices of these counts have not kept abreast with the raw material market. Spinners assert that they should be receiving at least 5 cents a pound higher than their current list on the basis of the present wool and top market.

Demand for worsted yarns has been retarded during the present season, both in weaving and knitting ends by the continued use of cheapeners, such as cotton and rayon, which many spinners are using as blends, permitting them to quote lower prices than on straight worsted yarns. For example, in the sweater business, there is a large demand for merino type yarns composed of a percentage of cotton or rayon which these spinners can offer as low as 40 cents a pound under the price of a corresponding count in all worsted. Demand for worsted yarns has also been handicapped by the slowness of the current season in men's wear fabrics, which spinners attribute to an upset in the goods market last month when several of the larger weavers named exceptionally low prices on their new goods. This was reflected in their demands from spinners for lower priced yarns that has resulted in some price cutting in men's wear yarns, partfcularly mixtures. Some sales of 2-30s mixtures have been made at several cents under $1.60.

One of the bright features of the market has been the increase in orders for knitting counts and especially those used for hand knitting purposes. Jobbers of hand knitting yarns report that poundage so far this season is about 20 per cent under that of the same time a year ago but interest this month has been showing a nice increase over that of a month ago. Spinners quote $1.05 to $1.07½ for worsted hand knitting yarns and several of them have business booked to run them four to six weeks ahead on these yarns.

Rayon Yarns Continue Active Acetate Yarn Prices Reduced

Rayon yarn shipments during September fell considerably below the record-breaking August figure. At the same time they were considerably larger than those of September, 1935, calling for the complete month's output of yarn and whatever small stocks of desirable weaving numbers that were available. It is believed that monthly shipments for the rest of the year will not reach the August level, since shipments from now will be straight from production, producers being unable to call on their stocks for this purpose. The fact that quantity rebates will be eliminated at the end of the current year is expected to cause some pressure on the part of the mill men to obtain extra supplies during December to take advantage of the 5 per cent discount now in existance. With producers rationing their yarn output for that month, it is difficult to see how mills may expect to obtain additional supplies.

On October 7 the Dupont Rayon Company announced that acetate yarn prices had been reduced effective that day. The action by this company was followed the next day by all other producers of acetate yarn. In the market there are several reasons advanced for the Dupont reduction. Some market factors believe that a slowing up in cloth sales resulted in this change. Others in the market expressed the belief that the published reduction came in answer to private reductions made to special customers by another acetate producer. Others claimed that it was for the purpose of reducing acetate stocks. Mill men welcome the change, however, since it brings acetate yarns down to a level where they may be expected to compete with viscose numbers.

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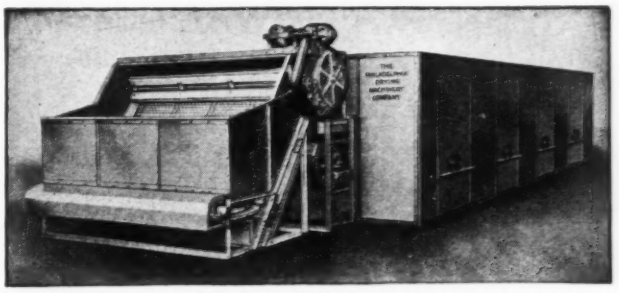

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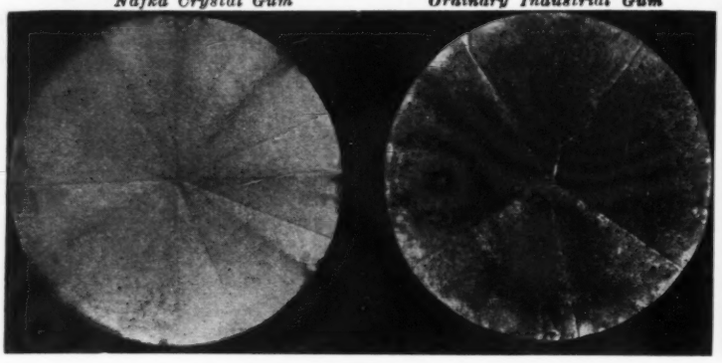

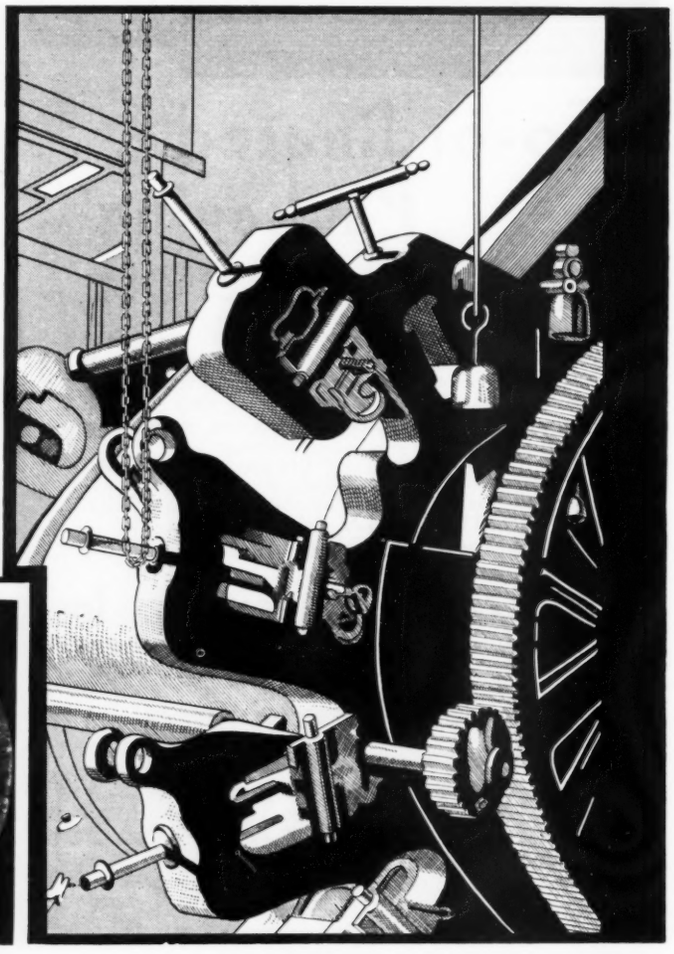

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Whatever the nature of the fabrics you are now bleaching, BECCO Hydrogen Peroxide backed by BECCO Technical Service can bring new advantages. A BECCO Engineer, thoroughly experienced in modern bleaching problems, is prepared to assist you. Permit us to demonstrate.

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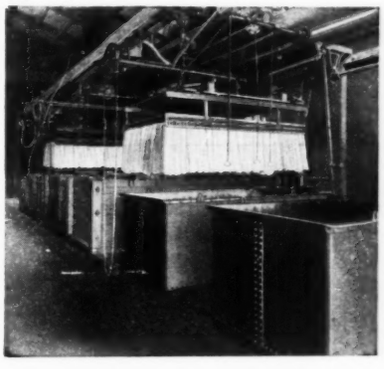

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Rinsing machine is also used for dyeing direct and other colors.

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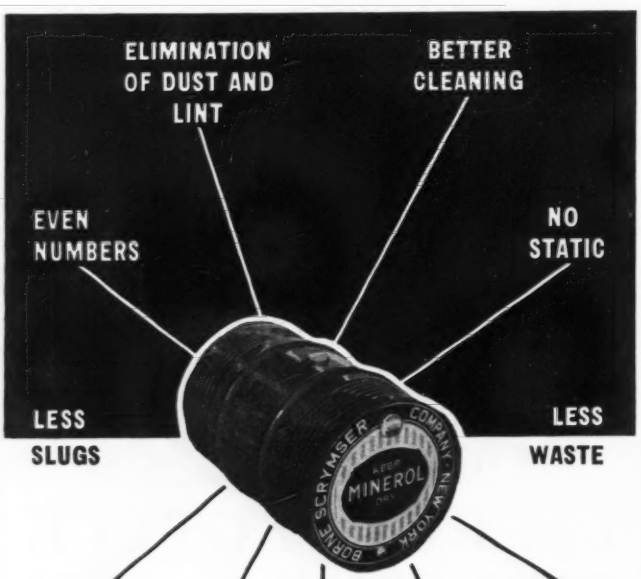

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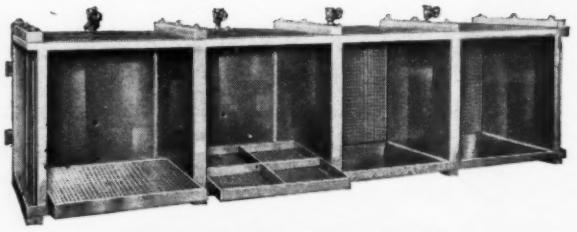

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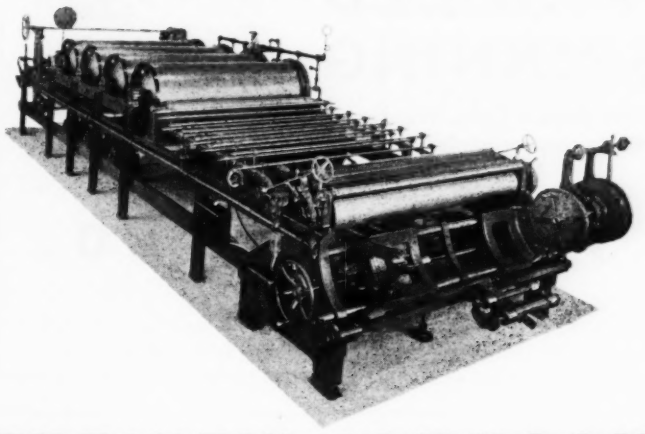

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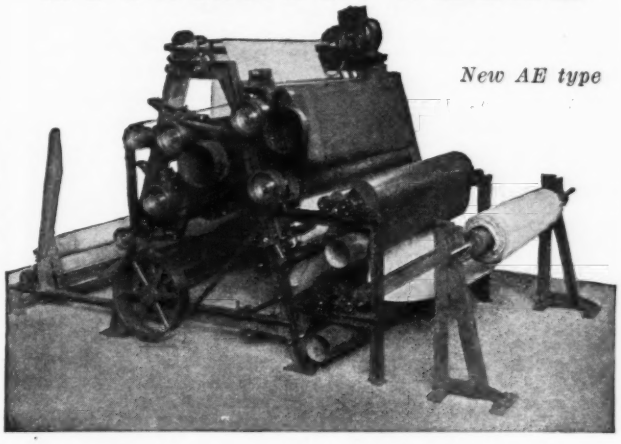

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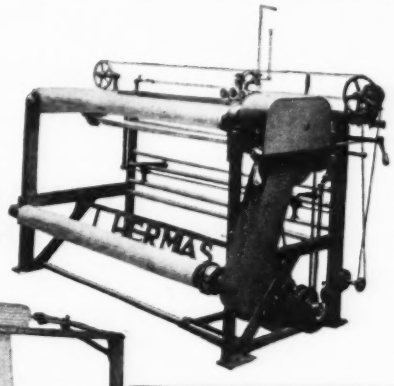

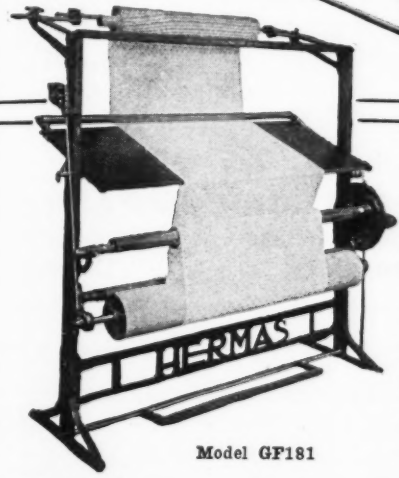

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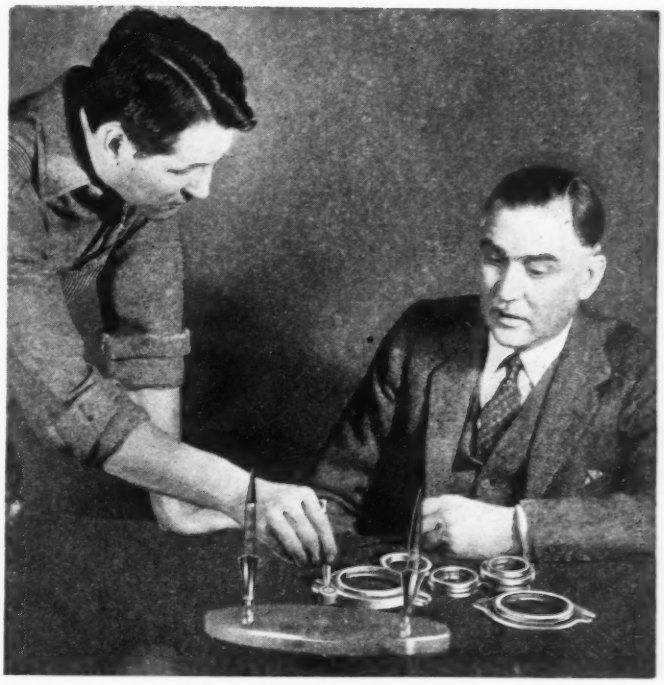

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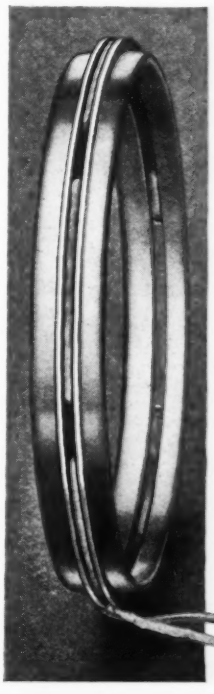

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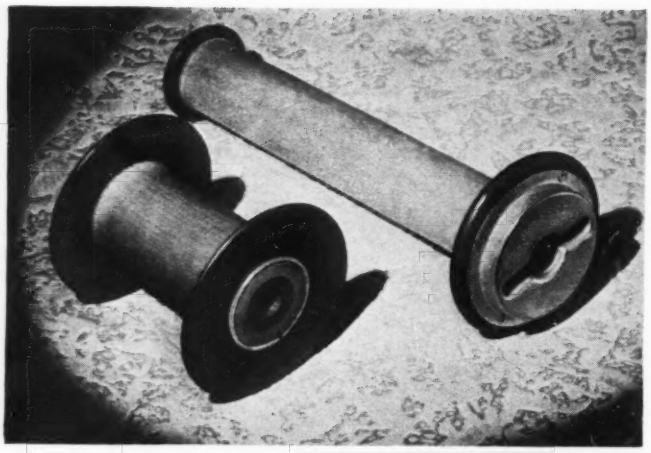

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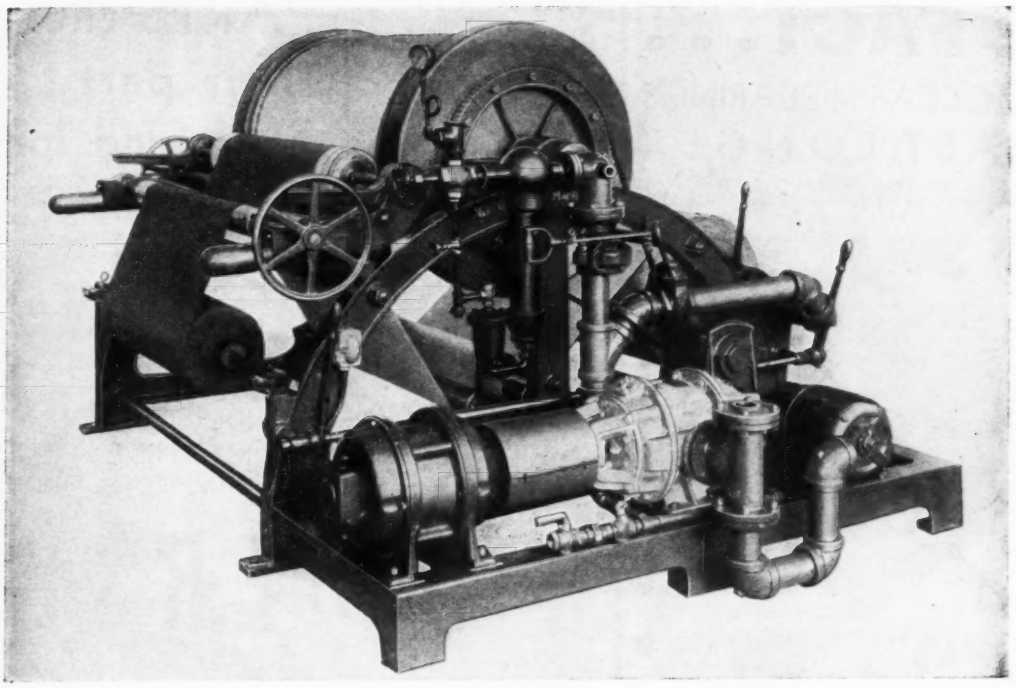

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SILK, RAYON AND FINE WORSTED YARNS. A TRAVELER THAT WILL NOT UNTHREAD. ESPECIALLY DESIGNED FOR LUBRICATING RINGS.

Write For Samples and Particulars

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Oliver B. Land, Athens, Georgia
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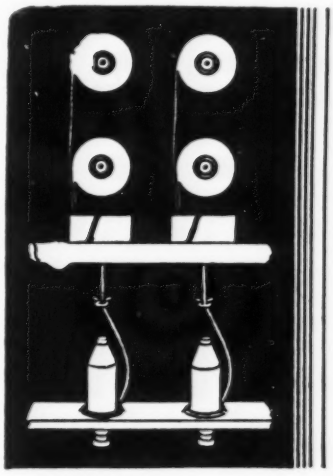
"A TRAVELER FOR EVERY FIBRE"



DONT LOSE *money Twisting from Spools Use the*
ABBOTT SYSTEM
write and see why

to ABBOTT MACHINE CO.
WILTON, N.H.

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Moccasin Bronze Bars are made from genuine Phosphor Bearing Bronze, the longest wearing, best all round bearing metal known—the same material as the nationally known Moccasin Bronze Bushings.
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BRONZE BARS Cored and Solid
MOCCASIN Self-Oil BUSHINGS
PLAIN BRONZE BUSHINGS
BRASS & BRONZE CASTINGS
• ACID RESISTING ALLOYS •

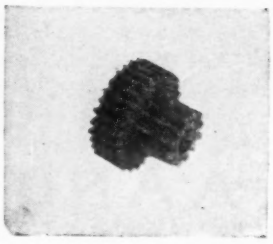
MOCCASIN BUSHING COMPANY
CHATTANOOGA, TENNESSEE

PARTS that do their part . . . better and longer

HENDERSON Textile Repair Parts do more than just replace old, worn-out, or broken parts, they actually make textile machinery run more smoothly, efficiently, and economically.
They are made for the purpose of strengthening and increasing the life and wear of every part. Precision patterns assure you perfect fit, and the weak points found in present-day textile machinery parts are made extra strong in all Henderson Textile Repair Parts. Let us quote you. Write to-day.

HENDERSON FOUNDRY & MACHINE WORKS
HAMPTON, GEORGIA

HENDERSON



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We have built a reputation that is known over the entire South by our special attention to the minutest detail.

We are more than ready to answer any question that relates to your printing problems.

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The A. J. Showalter Co.

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DALTON GEORGIA

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SILVERSTREAK

T. M. Reg. U. S. Pat. Off.

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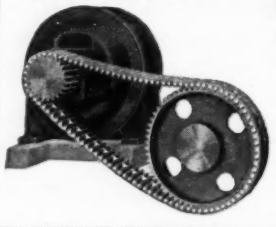

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"Residence of Presidents"
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TRADE MARK REG. U.S. PAT. OFFICE
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PROFITS *vanish in the Air... when windows are Opened*

Fresh air is *free.* Yet it costs many mills thousands of dollars a year. Why?

It's this way. Windows in the spinning and weaving rooms of these mills are open one minute, shut the next. Manual control of windows loses control of humidity. Loss of humidity causes spotty conditions, local drafts, ends-down and other costly production troubles and delays.

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Certified CLIMATE

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Specialists in the making of textile grinding machinery, B. S. Roy is able to keep manufacturing costs down to a minimum---savings that go to every purchaser of Roy equipment.

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OF HOSPITALITY

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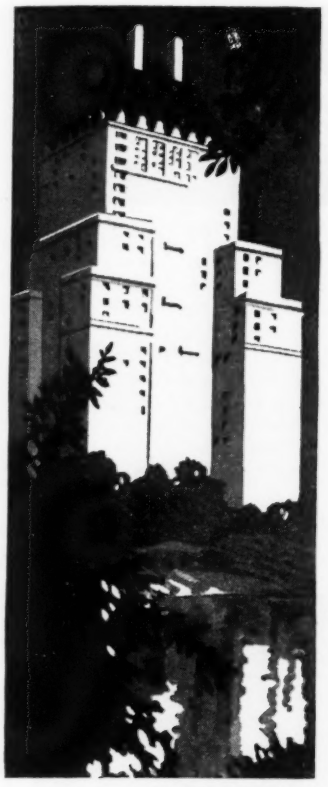

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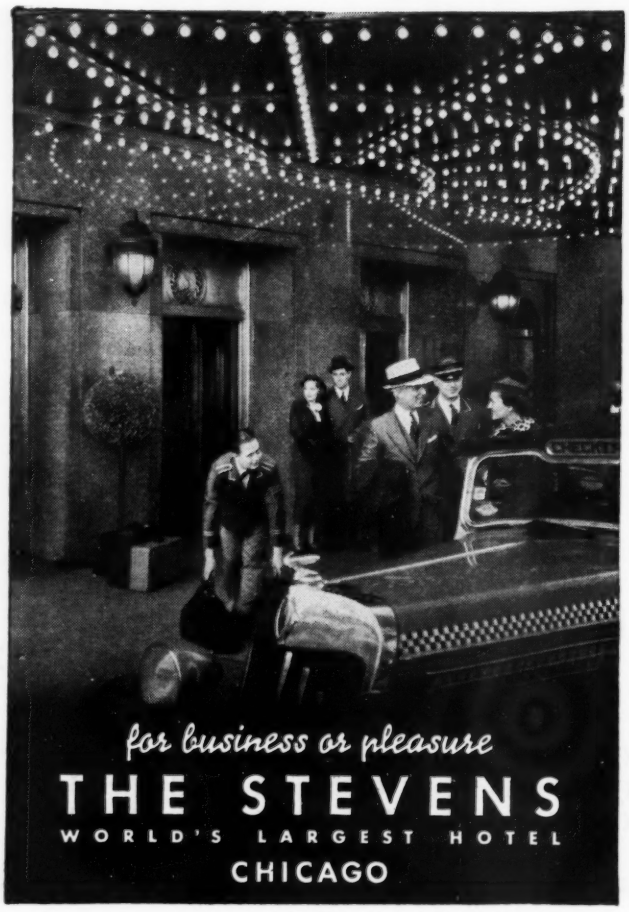
Henry A. Rost, Managing Director George Suter, Resident Manager

OVERLOOKING CENTRAL PARK • FIFTH AVE • 58th TO 59th STS • NEW YORK



for business or pleasure

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WORLD'S LARGEST HOTEL

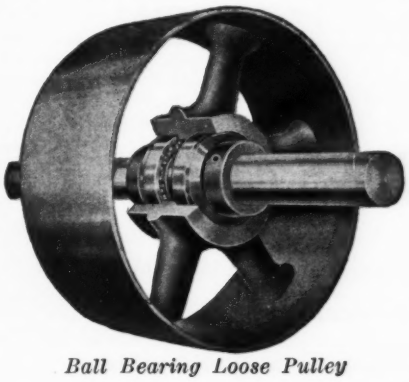
CHICAGO

GOLDENS' TRANSMISSION EQUIPMENT

Blower and Fan Bearings

Equipped With

FAFNIR BALL BEARINGS



Ball Bearing Loose Pulley

Helps to Reduce Power Costs

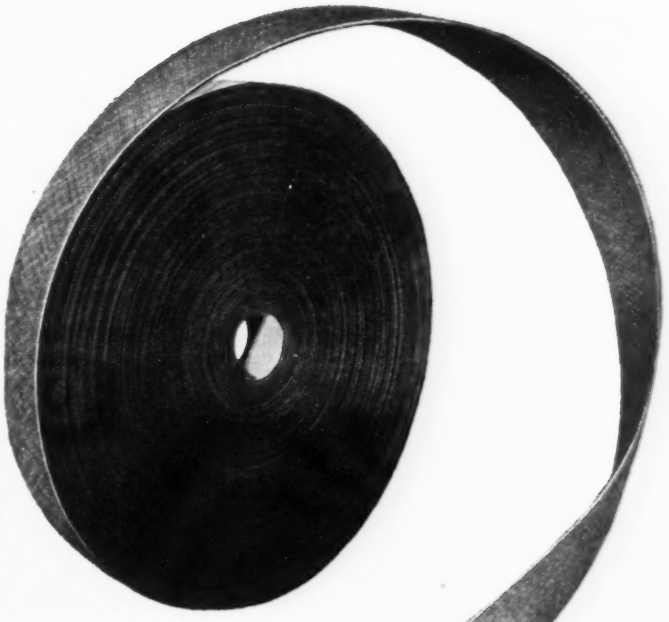
The combination of Goldens' 53 years' experience and Fafnir ball bearing efficiency assure transmission equipment that can be depended upon for longer life and lower power costs.

Write for catalogue No. 11 and prices on Goldens' Drop Hangers; Post Hangers; Pillow Blocks; Loose Pulleys; Blower and Fan Boxes; Flange and Cartridge Units; Spinning and Twister Frame Boxes; or any special application.

GOLDENS' FOUNDRY & MACHINE CO.

Columbus, Georgia

Pulleys	Continuous Dyeing Machines
Rope Sheaves	Raw Stock Dyeing Machines
V-Belt Sheaves	Cloth Inspecting Machines
Size Kettles	Cotton Mill Castings



The BIG QUESTION *has been answered . . .*

High-speed transmission over small pulleys . . . minimum stretch with maximum flexibility . . . these are the qualities mill men have been seeking in belting for a great many applications on modern textile machinery.

In PLY-TEX, they have found a belting that meets these exacting requirements. That's because no guesswork has gone into its manufacture. Thermoid engineers developed PLY-TEX from close observation of needs right in the field and by actual experiment with test installations.

Consult your belting supply house or write direct to us for samples and descriptive information.

PLY-TEX is made from a special light-weight high staple cotton duck fabric having a skim friction between plies that really holds. Furnished in 4, 5, 6 and 7 plies—from one to eight inches wide.

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BELTING ★ PACKING
HOSE ★ BRAKE LINING

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BUSINESS—EMPLOYMENT—EQUIPMENT—PROFESSIONAL CARDS—OPPORTUNITIES

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UNDISPLAYED

Advertisements set "Want ad" style. Positions wanted .05 word per insertion. Minimum charge $1.00 per insertion. Cash with order. All other classifications .10 word per insertion. Minimum charge $2.00 per insertion. Advertisements of equipment, for sale, rent or wanted and professional cards are accepted at display rate only.

Box number address care of COTTON, Grant Bldg., Atlanta, Ga., count as eight words.

POSITION WANTED

Employed at present. Married. Would like to locate with some firm making full fashioned hosiery who would like to improve their cost, seconds waste and manufacturing operations. Can train and handle help in all departments. Also train foreman, forelady and fixers. Familiar with all types of machines. Would like position as Manager or Superintendent. A-1 references. Address Box No. 410, care of COTTON, 1020 Grant Building, Atlanta, Georgia.

WE PAY CASH!

For Surplus or Odd Lots of Yarn
Rayon, Spun Silk, Raw Silk
Wool—Worsted—Cotton
(Any form dyed or Undyed)
QUANTITY NO OBJECT
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The Brooks Oil Company desires experienced salesmen to cover two established territories selling improved boiler metal treatment industrial paints, roofing material and other products. Only well qualified and recommended need apply. Must have car. Drawing account and high commission. State full experience and references. Address Brooks Oil Co., Cleveland, Ohio.

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Sixteen years experience. Age 41.

Address "Experienced", care
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Former Member Examining Corps
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WANTED TO BUY

From 60,000 to 120,000 lbs.
No. 1 Balled Slashers.

Address
P. O. Box 1144, Dallas, Texas.

DO YOU WANT TO SELL IT?

Probably you, like many other mills, have some equipment which you have taken out or are thinking of taking out and replacing with new equipment.

Why not dispose of that second-hand machinery at a profit? COTTON has the largest circulation among the textile mills of the United States of any textile publication.

You Can Sell Your Second-Hand Equipment

to these mills through advertising in the "Trading Post Exchange" of COTTON. Such advertising produces results at small cost—why not try it out and get that second-hand equipment off your hands in a profitable way? Tell us what you have for sale and let us insert an advertisement.

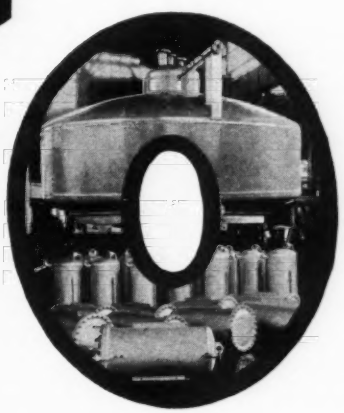
COTTON

GRANT BLDG. ATLANTA, GA.

For Warm Relations in Fabrication

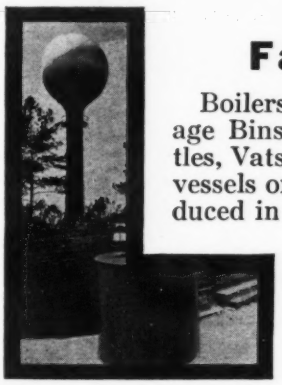
Tanks and Towers

Let us build the tank you need. Water tanks, acid tanks, dye tanks, chemical tanks, oil tanks, creosote tanks, tanks for every purpose — supported by towers of fabricated steel frames.



Nickel-clad & Stainless Steel Vessels

Starch Kettles and Boxes, Size Kettles, Digestors, Jig Boxes, Peroxide Storage, Vats, and other vessels of this durable metal made to order from your designs or ours. Nothing too large or complicated for us.



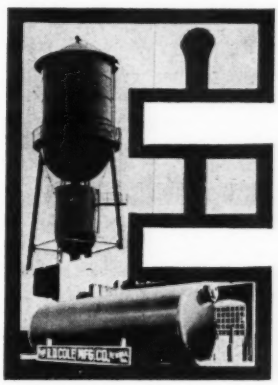
Fabrications

Boilers, Kiers, Air Receivers, Storage Bins, Framework, Tanks, Kettles, Vats—in fact any high pressure vessels or fabricated steel work produced in our plant.

Our Engineering Department will gladly submit designs to meet any requirements.

Smoke Stacks, Standpipes, etc.

These and similar products "custom made" to order from your designs or ours.



We can also produce special machinery for your own needs or for resale purposes.

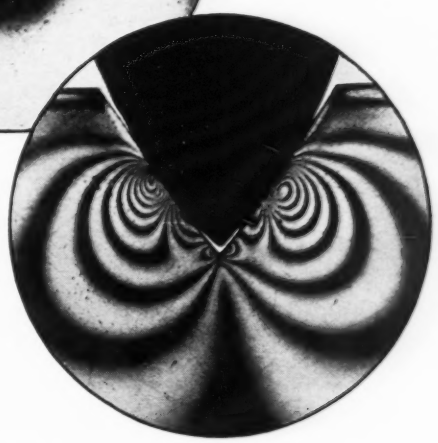
Write for "Tank Talk" No. 5C or let us know your interest in fabricated COLE Steel products.

R.D.COLE MANUFACTURING CO.
NEWNAN EST. 1854 GEORGIA
FABRICATORS OF STEEL AND ALLOY STEEL PLATE

PHOTO-ELASTIC PICTURES

SHOW HOW SCIENTIFICALLY DESIGNED SHUTTLE HOLE CUTS YOUR PICKER BILL . . .

INACCURATELY HAND REAMED
Shock concentrated—Picker breaks down quickly.



SCIENTIFICALLY MACHINE BORED
Shock widely distributed — Picker life increased.

In the laboratories of one of the world's finest scientific institutions, comparisons of stress distribution in various pickers showed that **THE PICKER WITH THE LIFE SAVER HOLE LASTS LONGER.** Only the Graton & Knight 50 Type Picker has the hole accurately pre-cut to fit the shuttle. It's a patented feature no hand-cutting can match and it cuts your picker costs in half. Some reports show the 50 Type Picker out-lives others more than 2 to 1.

U. S. PAT. NO. 1904318

50 TYPE PICKER

THE PICKER WITH THE LIFE SAVER HOLE

GRATON & KNIGHT CO., WORCESTER, MASS.

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HAVE you received your copy of COTTON'S new folder which lists the 170 textile mills, additions or major modernization programs in the South this year? A careful check of these items will show the tremendous business being offered by the textile South.

Write for your copy today.

COTTON

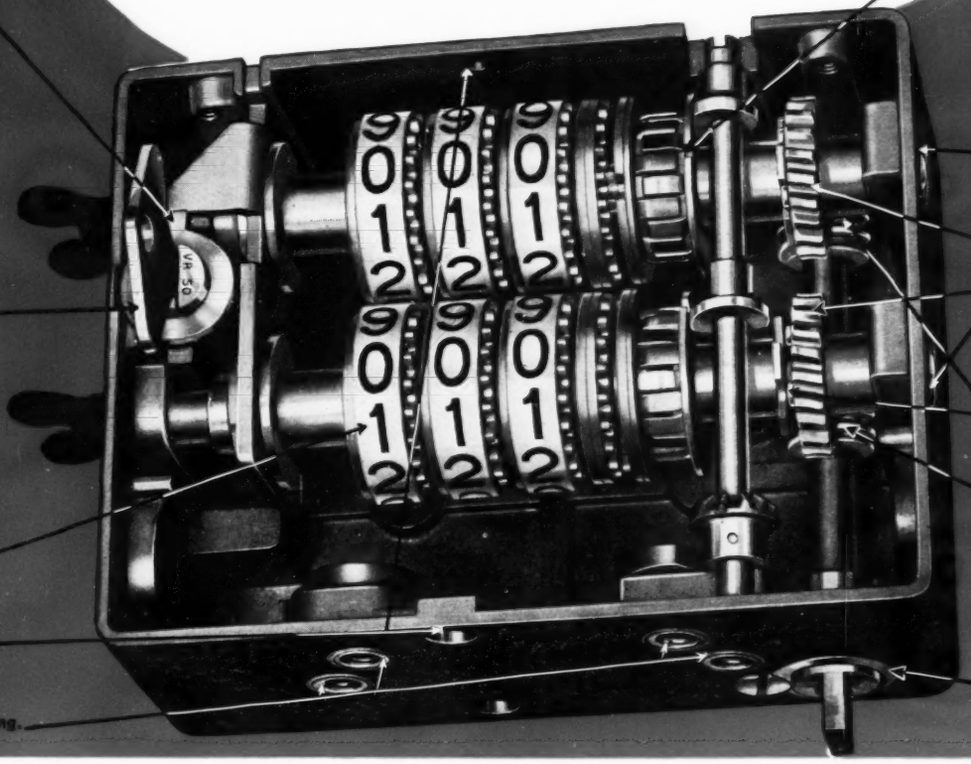
(Serving the Textile Industries)

ATLANTA, GA.

THESE NEW DESIGN FEATURES

THE Veeder-Root 2-3 RESETTING COUNTER

ASSURE A LONG AND TROUBLE-FREE LIFE


New double-acting locking mechanism.
Positive prevention against creeping when de-clutched.
Naval brass bearings cast in frame.
Large key for ease of unlocking.
Hobbed worm gears of special alloyed brass.
Staged driving lugs integral with gear.
Figures positively aligned after resetting.
Individual naval bronze worm drives for each shift.
Double seal.
Steel inserts for mounting.
Replaceable naval brass bearing.

Shown above are some of the advancements of pick counter design incorporated in the new Veeder-Root 2-3 Pick Counter. Some of these features safeguard the counter's long and trouble free life. Others contribute to its accuracy . . . assure the recording of the weavers entire output.

Realizing that *good details make good counters* Veeder-Root engineers keep everlastingly working at the *refinements* of pick counter design and construction. Guided by the information and data acquired since they designed and constructed the first pick counter 30 years ago, and from the experience gained in the manufacture and installation of half-a-million pick counters, these men have developed special metals, machines and processes to insure uniform accuracy.

The new Veeder-Root 2-3 Pick Counter is the finest that money can buy. It protects you against obsolescence. Ask to see it demonstrated. Write your nearest Veeder-Root office today.

VEEDER-ROOT Inc.

HARTFORD, CONN. • BOSTON • PHILADELPHIA • MONTREAL • LONDON • **GREENVILLE, S. C.**

BUILDERS OF COUNTING DEVICES SINCE 1878

IN STEP

With the Surge of Today's Markets!

ROYCE CHEMICAL CO. REG. U.S. PAT. OFF.

Specify VATROLITE *in any volume!*

- Packings of 50, 150 and 250 lbs. in moisture-proof containers.
- SPOT STOCKS from warehousing at
  - Charlotte
  - Greenville
  - Chattanooga
  - Philadelphia
  - Providence

VATROLITE
SODIUM HYDROSULPHITE
REG. U.S. PAT. OFF.

QUICKENED fabric markets set a Color pace that you will meet with VATROLITE • the premier agent for Color reduction and Stripping in the Vat.

● VATROLITE has *proven* its merit in every exacting dyehouse test. It brings longer, larger, BETTER dyehouse runs!

● MARK THESE FEATURES, as your warrant of purity in chemical formation and assurance of FINER effects with COLOR:

- **UNIFORMLY GRANULAR** . . . *with less dusting.*
- **HIGH STABILITY** . . . *free of black specks.*
- **STAYING POWER** . . . *that comes with full and uniform strength.*

Perfect Treatments for COLOR in the Vat

ROYCE
CHEMICAL COMPANY
Chemical Manufacturers
CARLTON HILL NEW JERSEY